EVIDENTIARY HEARING

BEFORE THE

CALIFORNIA ENERGY RESOURCES CONSERVATION

AND DEVELOPMENT COMMISSION

In the Matter of:

Application for Certification for the Palomar Energy Project by Sempra Energy Resources	))))	Docket No. 01-AFC-24

CALIFORNIA CENTER FOR THE ARTS

ESCONDIDO CONFERENCE ROOM

340 N. ESCONDIDO BOULEVARD

ESCONDIDO, CALIFORNIA

TUESDAY, APRIL 29, 2003

9:05 a.m.

Reported by:
James A. Ramos
Contract No. 170-01-001

COMMITTEE MEMBERS PRESENT

John L. Geesman, Presiding Member

HEARING OFFICER AND ADVISORS PRESENT

Susan Gefter, Hearing Officer

Rick Buckingham, Advisor to Chairman Keese

STAFF AND CONSULTANTS PRESENT

Paul A. Kramer, Jr., Staff Counsel

Bob Eller, Project Manager

Alvin Greenberg

Michael Clayton

PUBLIC ADVISOR

Roberta Mendonca

APPLICANT

Taylor O. Miller, Attorney

Raymond P. Kelly, Permitting Manager

Joseph H. Rowley, Vice President

Keith W. Merkel, Merkel & Associates, Inc.

Howard Balentine, ENSR

Donald A. Schilling, Burns & McDonnell

Eddie G. Torres, RBF Consulting

Johathan Brindle, City of Escondido Planning Division

Arrie Bachrach, ENSR

APPLICANT - continued

Patrick Thomas, City of Escondido Director of Public Works

INTERVENORS

Cory J. Briggs, Attorney on behalf of William Powers

William Powers

Scott Blaising, City of Escondido

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P R O C E E D I N G S

9:05 a.m.

HEARING OFFICER GEFTER: The hearing is reconvened. The first topic that we're going to hear this morning is biological resources, because the applicant's witness needs to leave, and then we'll go on to public health. Mr. Miller?

MR. MILLER: Thank you. We'd like to express our appreciation to the committee and the Hearing Officer for rearranging the schedule to allow Mr. Merkel to appear. Our witness for biology is Mr. Keith W. Merkel, and I'll ask Mr. Merkel to be sworn.

Whereupon,

KEITH MERKEL

was called as a witness herein, and after first having been duly sworn, was examined and testified as follows:

BY MR. MILLER:

Q Could you please state your name for the record?

A Keith Merkel.

Q And could you please summarize your educational background and experience with regard to the testimony in this proceeding that you are

about to give?

A My background is I'm the principle consultant for Merkel & Associates. I have over 20 years of experience doing biological resource investigations and assessment. Most of that's been in Southern California. And my role in this project has been to oversee all of the biological resource investigations for the ERTC project and Palomar Energy Project.

Q Could you please explain the purpose of your testimony?

A My testimony here is to provide the information on the biological resource impacts of the Palomar Energy Project, and place it in the context of the overall site work on the specific plan, and to address the laws, ordinances, regulations and standards with respect to biology.

Q Thank you. I'm going to skip over to the Exhibit sponsoring and get that out of the way. Are you sponsoring any portions of the application for certification for the Palomar Energy Project that address biological resources?

A Yes. I am sponsoring Exhibit 2, data response number 20 and 24. Exhibit 21, Escondido Research Council resolution approving the ERTC

specific plans or filing ERTC final EIR, approving ERTC litigation monitoring program.

Exhibit 22, city of Escondido final environmental impact report for the ERTC-specific plan. Exhibit 28, ERTC biological opinion and resource agency approvals. And Exhibit 1, section 5.3, and Exhibit F.

Q Thank you. Could you please summarize your testimony as presented in attachment Bio-A.

A Bio-A is testimony I provided in writing that goes through the environmental setting of the project. It provides an overall summary of the impact associated with the project to habitats and species present in the area.

It summarizes that the power plant is a 20 acre component of the larger ERTC project. That within that project the impacts of the power plant total 20.12 acres. The waterline for the project had an additional impact of 1.8 acres. The total project, including the Escondido Research Technology Center totals 182.32 acres.

The project would result in significant impacts to a variety of habitats within the city of Escondido. Those include grassland and sage scrub, as well as wetland habitats, among others.

Mitigation has been put forth in recommendations and those recommendations have been accepted in the city of Escondido's CEQA process and project approvals.

In addition to the CEQA required mitigations, there have been additional mitigations put on the project, or added to the project for conformance with Section 7 of the Endangered Species Act that have been additive to the city's requirements, upping mitigation ratios from the city's ratios to a higher ratio of 2.5, exhibit 2 for sage scrub. Mitigation has been included in terms of both onsite wetland mitigation as well as offsite mitigation for upland habitats.

Q And just to clarify, the analysis of the impacts on biological resources that you're summarizing includes the process that has proceeded at the city with regard to their EIR and the overall review of the impacts of the ERTC-specific plan?

A That is correct. The analysis completed for the project, the impact assessment and mitigation for the project, captures the entire breadth of the Escondido Research and Technology

Center specific plan, and includes all measures -- the umbrella includes all the measures that address the Palomar Energy Project within the context of that plan.

So all permits issued by the state and federal agencies in the CEQA document cover not just the Palomar Energy site but the larger site as well.

Q Could you summarize the state of approvals by the state and federal resource agencies with regard to biological impacts and required permits that they give?

A There are four state and federal permit approvals or authorizations that are required beyond the city's CEQA approval for the -- and I'll put this in the context of ERTC as sort of the larger piece. Four additional approvals required.

There is a biological opinion, under Section 7 of the Endangered Species Act, that has been issued by the Fish and Wildlife Service. There is a Corp of Engineers permit issued under Section 404 of the Clean Water Act that has also been issued.

A Section 1603 streambed authorization

agreement, from the California Department of Fish and Game, that has been issued as well. And the final permit is a State Water Resources Control Board water quality certification under Section 401 of the Clean Water Act. And that has also been issued.

So, at the present time, all permits required from state and federal agencies have been received.

MR. MILLER: Thank you. And that concludes our direct testimony from Mr. Merkel, and perhaps then I could go to Mr. Brindle. And I know you're interested in hearing from the city and its review and how that fits in.

HEARING OFFICER GEFTER: Well, I thought Mr. Brindle was going to testify on land use?

MR. MILLER: He is. If you'd like to cover it there, that would be fine.

HEARING OFFICER GEFTER: Yes, let's do that, under the land use section.

MR. MILLER: Okay. We thought you might want to touch on it here, too.

HEARING OFFICER GEFTER: Well, I just have a question for your witness right now. And perhaps you can help me, Mr. Miller. Where is the

biological resources mitigation implementation and monitoring plan in the Exhibits, because you didn't cite to an Exhibit?

MR. MILLER: It is not an Exhibit. It is a requirement proposed in the FSA conditions.

HEARING OFFICER GEFTER: Right. Biology 6, condition Biology 6. But is there another Exhibit that incorporates the plan that the ERTC requires? Is that in the specific plan, or is that in --

MR. MILLER: Let me see if that would be. There is a reference in the city conditions and in the city-specific plan to those conditions, yes.

MR. MERKEL: Should I address some of those?

HEARING OFFICER GEFTER: If you can give me more information --

MR. MERKEL: Yes, I can.

HEARING OFFICER GEFTER: Thank you.

MR. MERKEL: Within the mitigation programs for the federal and state energy permits there is a summary of three documents identified in there written by Merkel & Associates and Planning Systems.

And those three documents include the wetland mitigation plan, the upland habitat mitigation plan, and if you could bear with me, I'll get you the names of those references.

A portion of the mitigation measures are included in Merkel & Associates 2001 Biological Resources Impact Assessment for the Escondido Research and Technology Center's specific plan area.

HEARING OFFICER GEFTER: In what document is that found, in terms of our Exhibits in this proceeding?

MR. MILLER: Do you have the Exhibit numbers?

MR. MERKEL: I'll be looking for that. Another document is the draft conceptual mitigation plan for the Escondido Research and Technology Center dated September 16, 2002. That addresses the wetland mitigation requirements.

HEARING OFFICER GEFTER: And that was submitted after the specific plan was adopted, as I understand it?

MR. MERKEL: Yes.

MR. MILLER: I'd like to just interject, because I think I might be able to help you out.

There are a number of supporting documents that Mr. Merkel prepared in the course of all this work for the last year and a half, and I don't want to suggest that we need to have all of those as Exhibits, because we don't.

But we do have, to start with, Appendix F to the AFC itself, Exhibit 1, which has, in F1, the full biological resource impact assessment that was prepared by Mr. Merkel. It's a primary document.

We also have, in data response number 22, in Exhibit 2, the formal wetlands delineation report and biological assessment that was prepared and submitted to the Fish and Wildlife Services in support of their biological assessment.

So, I think that plus the detailed approvals of the four agencies -- each of which has detailed conditions that are required to be followed to implement those approvals -- put together, set forth in great detail the mitigation requirements for biological resources.

HEARING OFFICER GEFTER: Are those agency approvals incorporated into the specific plan, or are they separate documents?

MR. MILLER: They are separate

documents, but they are required as a condition of approval on the specific plan which Mr. Brindle can testify to.

HEARING OFFICER GEFTER: And I also see that Condition Bio 6 requires all those documents to be submitted to the Commission upon Commission action on this project. So, what I'm suggesting is that those documents need to be located and identified so that everything can be submitted in a timely fashion according to the requirements of condition Bio 6?

MR. MILLER: Okay.

HEARING OFFICER GEFTER: So that is why I'm asking you to identify where in the documents we can find them, or whether they will be available in a timely fashion to comply with this condition?

MR. MILLER: I see, all right. Now I'm with you a little better. The documents that I just mentioned cover, I believe, just about all of the references in Bio 6. So, we're in the favored position in some ways of having all those approvals prior to licensing, which is often not the case. I think we're actually ahead of the game on that.

HEARING OFFICER GEFTER: All right. Do you have any other witnesses on biology?

MR. MILLER: Not under biological resources, no.

HEARING OFFICER GEFTER: Staff, do you have any cross-examination, or --

MR. BRIGGS: No cross-examination.

HEARING OFFICER GEFTER: Okay, do you have any direct?

MR. BRIGGS: Yes, we were simply going to present on declaration Exhibits 50 and 51.

HEARING OFFICER GEFTER: What I'm looking at, in the proposed condition Bio 6 again -- because this condition requires the applicant to submit all of the documents -- is all the biology approval documents from all the relevant agencies to the Commission after certification.

And the timeline is that the project owner shall provide the required information 60 days prior to the start of any site mobilization.

So, what would be helpful is for us to identify where these documents are located, that they can be submitted in a timely fashion, and if you can help me in terms of the record, locate them for me, so we can see how they're --

MR. MILLER: Pardon me. I'm looking at Bio 6, condition 11. If you'd like to look at that for a second?

HEARING OFFICER GEFTER: Yes.

MR. MILLER: And those are the documents you're referring to, correct?

HEARING OFFICER GEFTER: Yes.

MR. MILLER: And I believe that the final EIR is an Exhibit already. I'll do this in my brief to make this clear to you.

HEARING OFFICER GEFTER: Thank you.

MR. MILLER: And I believe that, actually, all of those documents are already in the record, with the possible exception of the final Escondido sub-area plan implementing the MHCP which I don't think is final yet. So, we've covered, I think, everything in sub-paragraph 11 but that. But I'll put that in the brief so that you'll be clear on that.

HEARING OFFICER GEFTER: Thank you. I need that information. Thank you, that's what I'm getting at. All right. Does the intervenor have any cross-examination of the witness?

BY MR. BRIGGS:

Q Just a couple of quick questions. Mr.

Merkel, you're familiar with the Designation Waters of the U.S. under the Clean Water Act?

A Yes, I am.

Q What's the nearest water of the U.S. to the project?

A There are waters of the U.S. on the project, which is why the Section 404 permit was required. Basically, 404 is required for deposition of dredge or fill materials into waters of the U.S.

Q How about under Section 402, are there any nearby waters of the U.S.?

A There are no waters of the U.S. subject to 402 on the site or near the site.

Q What's the nearest river or tributary that would be a water of the U.S. to the site?

A Well, let me back up. 402 would apply in this situation -- the nearest water that 402 would apply to would be, actually, the Pacific Ocean.

MR. BRIGGS: Okay. Thank you.

HEARING OFFICER GEFTER: Do you have any direct testimony of biology?

MR. BRIGGS: No.

HEARING OFFICER GEFTER: We have no

further questions for the witness. The witness may be excused.

MR. MILLER: Thank you very much.

THE WITNESS: Thanks again for accommodating my schedule. I appreciate it.

HEARING OFFICER GEFTER: And, unless the applicant has any additional Exhibits related to biology, we can close the topic of biological resources.

MR. MILLER: That would be fine, thank you.

HEARING OFFICER GEFTER: Okay. So biological resources is closed. The next topic is public health. If you could have your witness sworn, unless --

MR. MILLER: All right, we're ready to proceed, thank you.

HEARING OFFICER GEFTER: Okay. Mr Schilling has just been sworn in, and Mr. Balentine was sworn yesterday.

MR. MILLER: I'll proceed first with Mr. Balentine. We've been through his background and educational expertise and occupational experience before.

BY MR. MILLER:

Q So I'll just start with asking him, with regard to public health, could you please explain the purpose of your testimony?

A My testimony describes the human health risks due to project emissions and toxic air contaminants or TACS. It will demonstrate that the project will be constructed in compliance with the applicable laws, and that it will not cause significant health risks to the general public.

Q Thank you. We're going to jump to the Exhibits for a second. Are you sponsoring any portion of the AFC relating to public health?

A Yes. Exhibit 1, AFC section 5.15, Public Health.

Q Thank you. Could you please summarize your testimony as presented in attachment PHA to your pre-file testimony?

A Yes. My testimony summarizes the potential public health impacts of the Palomar Energy Project. The analyses we performed demonstrate that the project will be conducted in compliance with the applicable laws and with implementation of planned mitigation measures we will have no significant adverse impacts.

The proposed Palomar Energy facility

will be a source of toxic air contaminant, as are many other sources that exist in the area, including cars, trucks, and other facilities with combustion equipment, because construction and operation of the facility will emit TACS.

We performed a health risk assessment for HRA to determine potential health risks to exposed members of the public from those TACS. These health risks consist of the potential development of individual cases of cancer and chronic and acute non-cancer risks.

In the performance of the HRA we applied standard approved methodologies to estimate ambient concentration of TACS and the health risks posed by those exposures. These methodologies are the same as those used by the CEC, Air Pollution Control Districts in California, and state and agencies within California performing risk assessments for TAC emissions from industrial sources.

The threshold for significance from cancer risk, using our analysis, is an incremental cancer risk of 10 in one million. This threshold is based upon the definition in Proposition 65 of 10 in a million as no significant risk threshold.

It is also the threshold used by the San Diego APCD and other California air districts as their level of significance.

And finally, the CEC staff has chosen this level as a significant threshold for public health impacts.

For non-cancer effects the threshold of significance for acute and phonic non-cancer risk is a hazard index of one. This is determined by dividing the reference exposure level by the observed concentration, and if that ratio is above, greater than, or equal to one, that is a hazard index of greater than one, and that is a significant impact.

Conversely, if the project has impacts of less than significance criteria for either cancer or non-cancer effects, no adverse health effects are expected.

In pre-hearing comments Mr. Powers requested that the HRA that was presented in the AFC be expanded to evaluate further the health risks of ammonia released by the Palomar Energy facility.

In addition, the San Diego APCD requested that a small number of additional TACS

be included in the analysis. These TACS were those released in trace amounts by drift in the cooling tower water, or by evaporation from the water.

In response to both of these requests we performed a revised health risk assessment that included the following changes: 1. We included the reduction in ammonia slip in the heat recovery steam generators that we discussed yesterday from a 10 ppm to a five ppm slip level, as agreed to by the CEC staff and Palomar Energy.

We also modelled the smaller increase in ammonia emissions requested by Mr. Powers by accounting for the potential ammonia stripped from the circulating cooling tower water.

And finally, we included the additional potential trace TACS that may be released in the drift from the cooling tower, as requested by the APCD.

The net result of these changes is that the total ammonia model in the revised HRA decreased from approximately 248 tons per year to 151 tons per year. In addition, there were very small increases in tap emissions due to the trace TACS from the cooling tower water.

In the risk assessment, risks are estimated for various types of exposure, including residences, occupational settings, sensitive receptors such as schools and hospitals, and the location where the peak offsite exposure and risk will occur. We included receptors for all of these types of receptors in our analysis.

For all receptors the estimated cancer risk is less than 10 in one million significance level. Also, the peak chronic and acute non-cancer hazard indices are well less than the significance threshold of one. At the location of the peak impact and exposure due to plant operations, the cancer risk is 0.9 in a million, or 9 percent of the significance threshold.

This risk occurs near the property facility boundary line. All other receptors, including sensitive receptors and residential receptors, have lower cancer risk. The peak acute hazard index is only 30 percent of the significance threshold, while the peak chronic hazard index is less than one percent of the threshold.

The primary contributor to the peak cancer risk is TACS emitted from the heat recovery

steam generators. At the peak impact location, the cooling tower contributes only 1 percent to the total cancer risk. Also, as ammonia is not a human carcinogen, there is no cancer risk due to emissions of ammonia from the cooling tower.

In summary, all estimated health risks due to construction and operation of the proposed Palomar facility are less than the established significance levels for cancer and non-cancer health risks.

Therefore, construction and operation of the Palomar Energy facility will not have a significant adverse impact on the public health. That concludes my testimony.

Q Thank you. One quick followup question? In light of your analysis, is there any significant difference with regard to the health risk between dry cooling approach for the plant versus a wet cooling technology?

A No. The impacts due to the wet cooling are so low as to be negligible, so therefore from a public health perspective there's really no difference in the public health impacts of the two technologies.

MR. MILLER: Thank you. I'd like to

call now Mr. Schilling, and get his direct testimony.

BY MR. MILLER:

Q Mr. Schilling, could you please state your full name for the record, and your title?

A My name is Donald A. Shilling, and I'm an associate chemical engineer at Burns & McDonnell.

Q At Burns & McDonnell engineering company?

A Yes.

Q And, incidentally, while I'm on the subject of Burns & McDonnell, could you explain their role in the overall plant design and engineering?

A Burns & McDonnell has provided the conceptual design for this project.

Q Could you please describe your educational background and your occupational experience related to your testimony?

A I hold a Bachelor of Science degree in Engineering Science from Rockhurst University. I'm a registered Professional Engineer in the state of Missouri. I've been employed continuously as a consultant in the power industry

for 30 years. I've been responsible for the design of water and wastewater treatment systems.

I've also served as consulting engineer on a continuing basis for several utilities in the development of their water monitoring programs and review of the analytical data to optimize their water conditioning programs.

Q Thank you. And what is your job description with respect to the Palomar Energy Project?

A I participated in the design of the initial water balance, and in the development of the water management plan. I provided input regarding the methods of controlling Legionella and other pathogens, and I've also reviewed the intervenor's estimates for the ammonia stripping, and devised an ammonia emission estimate based on the project-specific design criteria.

Q And could you please explain the purpose of your testimony, then?

A My testimony addresses the ammonia stripping emissions for the Palomar cooling tower, and also describes a planned approach to the design, operation and maintenance of the plant cooling system in order to control Legionella and

other pathogens.

I will demonstrate that the plant will be designed, operated and maintained in a way that reduces Legionella and other bacteria risk to extremely low levels that will not cause significant adverse public health.

Q Thank you. Could you now please summarize the testimony presented in attachment PH-B to your testimony?

A Yes. I'll start with the ammonia stripping issues. Mr. Powers had raised the issue of ammonia admissions from the cooling tower, and had provided estimates for the annual ammonia admission rates in his testimony.

I reviewed his values and I recalculated the amount of ammonia that would be emitted from the cooling tower based on plant-specific design criteria. I used the methodology that was similar to Professor Condon's when he presented his estimate yesterday.

In my testimony I presented two tables. The first table shows hourly admission rates under various operating conditions. In that table we have shown six cases.

Case one is the case that was based on

the design criteria that the intervenor had used, and Professor Condon had used. The total ammonia stripped in that case was 179 kilograms per day, and that compares with what I estimated from Professor Condon's nomograph. I got about 182, as close as you could read the nomograph.

In case two it's very similar to case one. The only difference is I inputted the specific site design criteria, such as the circulating water flow rate, average circulating water temperature. I also revised the makeup flow rate and blowdown rate, which is specific to this operating condition.

And then we used the cycles of concentration of four cycles in concentration instead of the five cycles of concentration. Concentration factor has two impacts. One of them is that it'll impact the parts per million of ammonia in the recirculating water. It also, with the lower cycles, you'll have more ammonia discharged from the system through blowdown.

The last two cases, cases five and six, are two cases that project the hourly emission rate based on the base operation and peak operating load conditions. These were used to

estimate the annual emission rates in table two.

The differences in cases five and six are primarily the difference in makeup rate and blowdown rate. In the peak case the evaporation rate is greater, and that's reflected in the evaporation and blowdowns.

I also used an ammonia stripping rate of three percent. In our research, it indicates that the ammonia stripping rate could be on the order of one and a half percent. We wanted to be a little conservative so we doubled that value, and arbitrarily used the three percent number as a conservative estimate for a stripping rate.

Under base case condition the hourly stripping rate was the 7.9 pounds per hour, and under peak case it was the 10.8 pounds per hour. Those numbers were used, then, in table two.

Table two shows the projected annual ammonia admission rate for two modes of operation. The first one is the maximum power plant operation, which assumes 100 percent operation, 8,760 hours per year. And that resulted in an estimated 37.5 tons per year emission.

The second case is the projected typical plant operation, which takes into account the

offload hours. And we're operating at 5,333 hours per year. And that resulted in projected ammonia emissions of the 23.1 tons per year. Moving on to the Legionella --

HEARING OFFICER GEFTER: Let me just interject for a minute?

MR. SCHILLING: Yes.

HEARING OFFICER GEFTER: What significance is the number 23.1 tons per year? What's that relative to, I mean, how do I look at that in terms of the picture?

MR. SCHILLING: These results were just used in the other analyses --

MR. MILLER: Let me explain it if I could?

HEARING OFFICER GEFTER: Have the witness explain it, yeah.

MR. MILLER: I think the correction you might want to respond to, if I could rephrase it, is how were your results used in the analysis of the impacts of the plan, is that right?

THE WITNESS: Yeah, I do understand that. I've heard several numbers that have been used in this projection of ammonia emissions. Anywhere from this low of the 23 -- actually, I

think yesterday I heard 7.9 tons per year up to 71 tons per year -- and those were used to develop the PM10 projections and the emissions.

And what my estimate is, it falls into that range, and what my attempt was, was to relate the plant operation for the 23 tons per year to what we project to be a reasonable plant operating load during a year. And this would be an average ammonia emission rate for a typical year of operation.

HEARING OFFICER GEFTER: And, again, how does that fall into the analysis in terms of impacts from ammonia strip in the cooling tower?

MR. SCHILLING: Well, I don't want to repeat what anybody else has said previously, but in the analyses that I've heard, even at the 71 tons per year rate there was very little impact. The numbers that I came up with were half of that rate, so again, I would say that the impact is very low or minimal.

HEARING OFFICER GEFTER: What do you -- I'm sorry, what is it compared with?

MR. MILLER: Ms. Gefter, the relevance of this testimony is just that Mr. Schilling prepared the estimate of ammonia emissions as Mr.

Powers requested in his direct testimony be done. That information then was taken by Mr. Balentine and used in his health risk assessment.

And also by Dr. Heisler, who testified yesterday, with regard to the potential for ammonia emissions, whatever they are, to convert to PM10. So, Mr. Schilling, as a witness, is not prepared to testify to what the significance of what the emission is, only what it is likely to be. Does that clarify?

HEARING OFFICER GEFTER: Thank you for that. I didn't understand the context of the testimony so I needed to have that for the picture that I'm looking for here.

MR. MILLER: And that was why yesterday I was thinking we could combine public health just because I saw this coming. We had to choose where to present this testimony, and it did actually form part of the foundation for the testimony.

HEARING OFFICER GEFTER: Also, again, to put the testimony in context. The tables that Mr. Schilling is referring to are attached to his direct testimony. And those are tables PH-B1 and PH-B2. All right, thank you. So you did the actual numbers and then Mr. Balentine took the

numbers and did the HRA?

MR. SCHILLING: Yes, that's correct.

HEARING OFFICER GEFTER: Thank you very much on that. Okay, go ahead.

MR. MILLER: We are, I think, completed with our direct. And if I could suggest that, as we did yesterday, if the staff could present their direct then we could facilitate the cross-examination, I think.

HEARING OFFICER GEFTER: Is that all right with you?

MR. KRAMER: That's fine with us. If I could have Dr. Greenberg sworn then?

MR. MILLER: Ms. Gefter? Excuse me, I apologize. I've just realized that, in the interchange with Mr. Schilling we didn't give him an opportunity to give his short testimony on the Legionella issue that Mr. Powers raised. I apologize.

HEARING OFFICER GEFTER: That's fine. So before Mr. Kramer begins, the applicant will continue your testimony on Legionella. I'm sorry.

MR. SCHILLING: I will make this short then. I was so close.

(laughter)

HEARING OFFICER GEFTER: You were so close.

MR. SCHILLING: Legionella disease outbreaks associated with cooling systems are usually linked with building cooling systems. It is possible for the bacteria to grow in industrial cooling towers as well. California Code Of Regulations Title 22, section 6303 regulates the use of recycled water in cooling towers, and requires the use of chlorine or other biocides to control the growth of Legionella and other bacteria.

Cooling Tower Institute has issued guidelines that include consensus recommendations for best practices to control Legionella growth. Recommended best practices included the avoidance of stagnant water, maintaining the cooling system cleanliness, the use of biocides, the use of scale and corrosion inhibitors, and the use of high efficiency drift eliminators.

These recommended practices minimize the risk of Legionella disease, but they also serve to maintain a clean and efficient cooling tower, which maximizes the plant efficiency.

Because it is in the best interest of

the utilities to maintain an efficient cooling system, the risk of an occurrence of Legionella outbreaks resulting from the utility cooling tower operation is very low. In fact, I know of no utility that currently practices operation under the Cooling Tower Institute guidelines to have any outbreak of Legionella reported.

MR. MILLER: That concludes our testimony on direct then, for public health.

HEARING OFFICER GEFTER: Thank you.

MR. KRAMER: Dr. Greenberg has warned me that he only has a long version of his qualifications, so I wonder if I can have a stipulation as to his qualifications?

MR. MILLER: We would certainly stipulate to Dr. Greenberg's qualifications and expertise.

HEARING OFFICER GEFTER: Thank you.

MR. KRAMER: Dr. Greenberg, you do prepare the public health testimony in this case, is that right?

DR. GREENBERG: That's correct.

MR. KRAMER: Could you summarize your testimony?

DR. GREENBERG: Very briefly. I'll

spend a little bit of time on some of the basic issues, a little bit more on the Legionella issue and the ammonia stripping issue from the cooling tower.

As everyone is aware, the California Energy Commission staff divides up emissions from a power plant into two separate categories. One, public health, which addresses the non-criteria or toxic air contaminant emissions, and the other being air quality, which addresses the criteria for which there are national or state ambient air quality standards.

Staff, therefore, reviewed the potential for impacts from these non-criteria toxic air contaminants emitted from various facility sources, all sources that would emit toxic air contaminants. And we did this not only for the construction phase, but for the operational phase of the project as well.

The assessment includes a human health risk assessment which was prepared by the applicant. Staff independently reviews, evaluates, and recalculates the human health risk assessment using the most up-to-date CAL EPA and U.S. EPA procedures.

We found that -- with just a very minor difference that didn't make any change in the number -- that the applicant did indeed follow CAL EPA procedures, and that the number was a valid, theoretical upper-bound estimate of what the risk of cancer or the hazard of non-hazard toxicological endpoints could be presented by the facility.

Put another way, that is the true or actual risk or hazard to a member of the public or a worker would be somewhere between zero and that theoretical upper-bound risk.

Staff uses as a criteria of acceptance -- as the applicant had pointed out in his direct testimony -- a cancer risk level of 10 in a million. That means that if a million people were exposed 24 hours a day, 7 days a week, 365 days a year for a 70 year lifespan, one would expect only 10 excess cancers to exist in that population of a million individuals exposed.

The background cancer rate in the United States is somewhere around 250 to 300 thousand in a million. So staff uses a very low threshold level for an increased risk.

This is also consistent with the San

Diego Air Pollution Control District, which states that, if the risk is less than one in a million, the facility does not even need to have best available control technology. If best available control technology for toxics is installed -- and for this facility it is, even though the risk is less than one in a million -- then the San Diego Air Pollution Control District's risk management policy threshold is consistent with the staffs, and that is ten in a million.

Just want to make one correction to my testimony on that. On page 4.7-19, once again, that elusive decimal point moved over to the wrong place, and it does state in the fifth line, the word "since it is less than 1.0 in one million" it really should be "since it is less than ten in one million."

HEARING OFFICER GEFTER: Okay.

DR. GREENBERG: Staff --

HEARING OFFICER GEFTER: I'm sorry. Say again where that change is. I have the page, it's 4.7-17?

DR. GREENBERG: 19. And this would be the fifth line.

HEARING OFFICER GEFTER: Right. I see.

In both cases less than ten in a million? There are two sentences there.

DR. GREENBERG: Oh, the second one refers to the hazard index, so that's still correct as 1.0. The other one, however, says 1.0 in one million and should be ten in one million.

Technically, as I just explained, I was correct in listing one in one million, but I should have said without T-backed (sp). It floats, that decimal point, you never know where it ends up on the word processor. So that makes it consistent.

I also want to point out that I reviewed the applicant's testimony in regards to the health risk assessment, and their revised health risk assessment, and found it to be conducted appropriately using CAL EPA and U.S. EPA methodologies, and as the Air District testified yesterday, I find it to be acceptable, and agree with the conclusions.

Therefore, those risks, or rather the result there for the maximum chronic hazard index, is now in conflict with the staff's report, because the staff, of course -- I wrote the assessment based upon the original health risk

assessment many months before they provided their testimony on the revised health risk assessment.

So, if we look on page 4.7-13, public health table two, in the first column of hazard index/risk, the acute non-cancer stays the same. The individual cancer rate stays the same, but the chronic non-cancer, which originally from the AFC was .05, is now .086, and the source for that is their table PHA2, attachment to table PHA2.

I believe that's Exhibit 35?

MR. MILLER: Correct.

HEARING OFFICER GEFTER: Whose testimony is it?

MR. MILLER: Mr. Balentine's.

MR. KRAMER: Does that change your determination of significance?

DR. GREENBERG: Oh, not at all. It's still much less than the level of significance, which is 1.0. What that says, essentially, is that no chronic hazard would be expected to occur as a result of facility emissions of toxic air contaminants. I just wanted to make sure that we reconciled that at this time.

Staff also conducted a thorough review and evaluation of the potential of the cooling

tower to pose a risk to either onsite workers, offsite workers, or the general public due to a real yet small potential that the Legionella bacteria could grow within the cooling tower water, within the system, and then be dispersed into the air and thus exposing workers or the general public.

I reviewed over 30 references, scientific articles, technical articles published in the literature worldwide. I attended the Cooling Technology Institute annual conference in early February in San Antonio, Texas. Talked with a number of experts in the area, and we have proposed that -- in order to ensure that the risk of anyone coming into contact with Legionella is kept to an absolute minimum -- one proposed condition of certification public health 1.

The risk of Legionella is small, we want to keep it that way. It is extremely doubtful that healthy individual workers, whether onsite or offsite or healthy members of the public, are susceptible to Legionella.

Legionella bacteria can grow almost anywhere in the environment. You can have them in standing water in a field. They do tend to grow

in HVAC, heating ventilation and air conditioning systems, in buildings that are poorly maintained, have deadends in the circulating system, such that water remains stagnant, or poorly maintained cooling towers with no chemical treatment.

My research has found that modern power plant cooling towers that have an active biocide implementation program and are routed with good maintenance and monitoring of that program do not pose any significant risk of Legionella growth and therefore exposure in causing disease in humans.

But the condition of certification is essentially to memorialize in writing what the applicant has already stated they would do, and that can be found on page 4.7-19 of staff's testimony.

There are in existence this day a few recommendations on such a program. The applicant is free to follow the Cooling Technology Institute program. There is a program proposed by a province of Queensland, Australia, and staff has also prepared a biocide program which is currently under review by management at the CEC.

This is certainly not something that we will make everybody follow exactly, but it will be

a suggestion. It is consistent with the ASHREA, that's American Society of Heating and Refrigeration Engineers Association. It is consistent with the CTI, the Cooling Technology Institute recommendation, and includes the best recommendations of professionals in the field.

I also reviewed the applicants testimony in regards to the amount of ammonia that may or may not be stripped from the tower, and also the intervenor's estimate.

Quite frankly, it is probably an over-estimation, in my opinion, by both the applicant and the intervenor as to the amount of ammonia that would be stripped from the cooling tower. So, I think they're both in error, and I'll give you my reasons for that in just a moment.

But nevertheless, if I were to take it at face value, either one of their estimates of how much ammonia was stripped from the tower -- and, by the way, I could not find any direct measurement of ammonia coming from the cooling tower in the scientific or technical literature.

What I did find, and what I did put in my testimony, was a emission factor at two power plants, one of which is being proposed, one of

which has already been certified by the CEC, that have ammonia emission factors in the drift. So this is the droplets as opposed to the vapors coming off.

Regardless of which value you use, and I want to reassure the intervenor, and the members of the public, that even if the higher value of ammonia being stripped from the cooling tower were to be used, it still would not result in any type of hazard to members of the public or to workers.

In other words, the airborne concentration would be so very, very low that not only would you not experience any public health impact, acute or chronic, but it would be so far below the odor threshold that you wouldn't even be able to smell it. The odor threshold for ammonia in most people is somewhere between 5 and 10 parts per million, maybe as low as 2 in some very sensitive individuals.

The airborne concentration of ammonia, even taking the highest value possible, would be far, far lower than that, a hundred, maybe even a thousand times lower.

So I want to assure everybody that the intervenor has asked that staff conduct an

independent evaluation as to whether or not a public health impact exists, and I find that there is no public health impact from the release of ammonia from the cooling tower.

But one of the reasons that I think that the estimates are low is really --

MR. KRAMER: Do you mean low or high?

DR. GREENBERG: I'm sorry, that the estimates are too high, and that my estimate would be lower. Thank you. Is really based on the Exhibits that the intervenor has provided, Exhibits 106 and 107, which I got yesterday.

Which puts in writing in document something which probably all of us in the field already know. And that is, Exhibit 106 states quite clearly that ammonia will react with chlorine.

And so when hypochlorite is added as a biocide, one would have to add a little bit more hypochlorite to neutralize or essentially react with the ammonia in order to get a residual level of hypochlorite in your cooling tower water to act as a biocide.

What this means is that once the hypochlorite is reacting with the ammonia, the

ammonia is not ammonia any more, because what forms is a chloramine.

Now chloramines are also biocides. In fact, the Metropolitan Water District of California, the Contra Costa Water District, the East Bay Water District, many water districts throughout California and the United States, use chloramine as the disinfectant product to keep the byproducts of disinfection, the trihalomethanes, to a much lower level, because they present a greater risk to human health by indigestion than do chloramines.

It's a gentler method, but it's still very effective, and yes, you have to have more contact time with the microorganisms in order to kill them, but nevertheless it's very effective.

So what happens is, when you're using recycled water, and it has varying amounts of ammonia in it over time, and you're adding your hypochlorite as your biocide, you're doing two things.

You're making chloramines, and the chloramines are much less volatile than ammonia. At least 100 times less by Henry's constant, and if you refer to Exhibit 107, table two, Henry's

law constant, which is the air/water partition coefficient, it lists a Henry's constant as 20 degrees centigrade for monochloramine at .45. That's 100 times less than that of ammonia at the same temperature.

So now you've got something that the nitrogen, the ammonia, is no longer ammonia and freely available for release, it's now a chloramine. And it's not going to be as volatile, it won't be released into the air, or stripped out, if you will, and yet it's still a biocide, a functioning biocide.

So when the applicant has conducted its analysis and comes up with an ammonia stripping rate, I don't think they took that into account. That you're destroying your ammonia as you are treating your water. And I think they overestimated the amount.

With that, let me summarize once again. I conducted a thorough review and evaluation of ten public health impacts, find that the construction and operational phases will not release toxic air contaminants in any amount that would cause any significant risk to workers.

That the risk from Legionella forming in

the cooling tower is very low, and to ensure that it is below a level of significance a proposed Condition of Certification Public Health One is before you. Thank you.

MR. KRAMER: One followup question. Mr. Powers, in his testimony -- and I'm not sure I'm looking at the same version of it as the Exhibit so, I hesitate to give people a page number -- but it was one of the documents that was e-mailed to me. The statement is a simple sentence, "cooling towers" -- and I'm quoting -- "cooling towers are typically among the least routinely inspected and maintained pieces of equipment at a power plant."

And he footnotes that, and says that was based on a telephone conversation with David Wheeler. Do you agree with that statement?

DR. GREENBERG: No, I don't. And I'd like to explain why I don't agree with that statement. First off, I have talked with professionals in the cooling tower industry, people that I have met over the years and, more importantly, that I met at the annual Cooling Technology Institute conference.

I've also talked with power plant operators other than the applicant. Obviously,

the applicant has a vested interest in this project, so I called and talked to some people from Calpine. Specifically, I spoke with Mr. Jim McLucas, Regional Engineering Manager for Calpine.

It has been my understanding, and Mr. McLucas agrees with me, as do some of the professionals that I spoke with in the cooling tower consulting industry, that an owner/operator of a power plant has a vested interest in maintaining the cooling tower, and certainly maintaining and inspecting the cooling tower water chemistry.

They want to avoid corrosion, they want to avoid scaling, they want to avoid biofouling, and all the steps that they take to avoid doing that will also avoid the growth of Legionella.

MR. KRAMER: Why do they want to avoid those things?

DR. GREENBERG: Well, they want to avoid those things because if you have a decrease in your cooling efficiency you have a decreased power output. Decreased power output means decreased cash flow.

And, in fact, Mr. McLucas stated just the opposite from what it appears Mr. Wheeler had

told Mr. Powers, that the cooling tower and the water chemistry within the cooling system is actually one of the more frequently inspected and maintained systems of a power plant.

MR. BRIGGS: Ms. Gefter, I didn't want to cut off the witness, but this last line of testimony is objectionable as hearsay.

If the witness wants to give his professional assessment, that's fine, but the last few minutes, from where I sit, have just been sort of a recount of what other people have told him. And I think is objectionable and should be removed from the record on that basis.

MR. KRAMER: Well, I think that --

HEARING OFFICER GEFTER: I was waiting for your objection, Mr. Briggs. I was surprised that you didn't say anything earlier. Again, the same objection was raised for Mr. Powers yesterday.

Mr. Powers spoke with other people outside of this hearing, and again, the hearsay testimony that he was presenting us was allowed to the extent that it was the basis on which he was presenting his own opinion.

And the same would be true for Dr.

Greenberg. Dr. Greenberg has informed an opinion as an expert witness.

The information that he received from particular individuals that are not here today is hearsay information that we can't necessarily rely on, but you have used that in informing your expert opinion and therefore, we're not going to strike your testimony, but it will be given less weight than if it had been information that you had first-hand knowledge about, or had brought in the other people that you spoke to, and had them testify.

MR. KRAMER: Okay. So his opinion is entitled to the normal weight, it's just the basis that he described which receives different treatment.

HEARING OFFICER GEFTER: That's right.

MR. BRIGGS: If the opinion is based entirely on what other people have told him, the Commission will have to take that into account. If it's his own independent opinion that's a different story.

HEARING OFFICER GEFTER: That's right, Mr. Briggs.

MR. BRIGGS: Thank you.

MR. MILLER: Can I just interject one thing that I'm noting here. And that is that the testimony of Dr. Greenberg was responsive to a statement in the direct testimony of Mr. Powers which itself was based upon a telephone conversation.

And so, that would also be subject to the same prescriptions, I think, that you just outlined.

HEARING OFFICER GEFTER: I think the best witness to testify about this particular issue would probably be your project manager.

MR. MILLER: That would be fine.

HEARING OFFICER GEFTER: And if Mr. Rowley would be available for rebuttal testimony, you're welcome to put him on.

MR. MILLER: We were thinking of that, too, thank you.

MR. GEESMAN: Let me just point out that the footnotes that Mr. Kramer referred to that started this whole dialogue is contained in Exhibit number 108, Bill Power's expert testimony. So that the record is clear when we all go back to cited briefing.

I did have a question, Dr. Greenberg.

Did you have a number that you would put forward as a more reasonable value, or perhaps a range of values, as to annual ammonia emissions?

DR. GREENBERG: Commissioner Geesman, no. Unfortunately I have not done that calculation. It would depend on how much of the ammonia gets neutralized with the hypochlorite that's being added.

In all honesty, hypochlorite can be used, bromine can be used as well. The bromine, one would use less, but yet it would still interact and remove the ammonia. So, instead of getting a chloramine you get a bromamine.

But these are maximum values, and I felt that if I felt comfortable enough to state that I thought that these maximum values still would not result in a public health impact, that anything less than that still would be even less of an impact.

MR. KRAMER: Nothing further.

HEARING OFFICER GEFTER: Dr. Greenberg, I have a question for you regarding the threshold standard that the staff is using to determine cancer risk. And your testimony is that it's ten in a million, which reflects what the air

district's standard is.

And I know that, in the past, staff has used a 1.0 in a million standard, and only recently has changed to a ten per million standard for cancer risk.

If you could walk me through the reasons why staff has changed its standard, and also explain how staff analyzes it. Whether you do it on the basis of each non-criteria pollutant, or you do it as a whole, in terms of cumulative impact.

DR. GREENBERG: I'd be happy to. If I can answer the second part first, it is a cumulative impact. And that's really opposite from the air quality section, which looks at each individual criteria pollutant. And compares it to an ambient air quality standard.

The purpose of the human health risk assessment is to look at everything in an additive or cumulative manner. And so, it's not like the cancer risk would be due to just one substance, but it's due to many, many, -- in this case, over 20 different toxic air contaminants that are emitted in traced quantities.

It's really a tribute to the analytical

chemist that they can measure these at the stack. You could not measure these at the point of maximum impact. It would be below our ability as analytical chemists to measure them.

But nevertheless, the air dispersion model gives you a theoretical airborne concentration, and it's usually a maximum airborne concentration. And we add up the risk, or the hazard, of each one of those and come to a total cancer risk. Which is why I refer to it as a maximum theoretically calculated cancer risk.

Same thing with the hazard index. It was probably just a couple of years ago that staff moved to a ten to the minus sixth, or ten in one million cancer risk as a significance threshold, although I would let the senior engineer, Mr. Mike Ringer, sitting behind me, to tell me I'm wrong if it occurred much sooner or later than that, but I think it was just a couple of years ago.

And staff did that not only to be consistent with not only the air district's risk management policies throughout the state of California, where insignificance without BACT was one in a million, but with BACT it was ten in a million.

But to be consistent also with the definition of no significant risk level as defined in the Toxics Exposure and Enforcement Act, otherwise known as Proposition 65, which was voted on in 1986.

It is also within the risk range that the U.S. EPA uses, which is a ten to the minus four to ten to the minus six risk range. Where the U.S. EPA will, on a site specific basis, determine whether that level is significant or insignificant.

Anything less than one in a million just about everybody feels is insignificant. Anything greater than one in 10,000 just about everybody feels you should do something about it, and anything in-between there are some differences of opinion. So, we wanted to be consistent throughout the state.

MR. KRAMER: That's all from us.

HEARING OFFICER GEFTER: Okay. At this point we'll make the witness available for cross-examination. Mr. Briggs, are you going to have direct testimony on public health as well?

MR. BRIGGS: Yes.

HEARING OFFICER GEFTER: At this point

you can cross-examine the witnesses.

MR. BRIGGS: That's what I'm prepared to do.

HEARING OFFICER GEFTER: Let's go off the record.

(Off the record.)

HEARING OFFICER GEFTER: Back on the record. And the intervenor had cross-examination for the witnesses on public health?

MR. BRIGGS: I'd like to start with Mr. Schilling, if I could. Mr. Schilling, I'm going to ask you about your pre-file testimony, and also about Exhibit 91. Do you have those handy?

MR. MILLER: Can we just have one minute, to organize this?

MR. BRIGGS: Of course, absolutely. It'll be page 16 in Exhibit 91, just to help you out.

The first one is page five, where it says, toward the middle of the last paragraph "effective stripping rates, ranging from" -- I'm sorry, that's the wrong thing.

It's page five, but it's the last sentence of the second to last paragraph. It ends "because the nitrifying bacteria will reduce the

amount of total ammonia/ammonium in the circulating water, the amount of ammonia available for stripping will be decreased proportionally." And then on page seven --

HEARING OFFICER GEFTER: I'm sorry. Mr. Briggs, we're talking about the written testimony of Mr. Schilling?

MR. BRIGGS: That's correct. The pre-file direct. Then, on page seven, Mr. Schilling, you say, in summary, "the Palomar Energy cooling system design, as well as the planned rigorous operation and maintenance approach to control bacteria and biofilm buildup, will reduce to insignificance the risks associated with Legionella or other bacteria."

The first statement looks to me like there are going to be a bunch of these bacteria that will reduce the amount of ammonia and ammonium circulating in the water, and then the second statement sounds to me as though these bacteria are going to be there at a minimal level and kept under control.

Perhaps I just don't know the technical details well enough, but I'm trying to understand how they can be there controlling ammonia, and at

the same time be under control?

MR. SCHILLING: I think I understand your question. There's a number of different bacteria that are out there in this world. The data that we had was based on a study for a refinery in Saudi Arabia that had used secondary sewage effluent as makeup to the cooling tower.

The purpose of the study was to evaluate the effectiveness of their biocide treatment program.

MR. BRIGGS: It was, the purpose of the study was to what?

MR. SCHILLING: The purpose was to evaluate the effectiveness of the biocide program. The biocide program was using both oxidizing and non-oxidizing biocides, with the oxidizing biocide being sodium hyperchloride. So they did have a chloramine residual in the system.

What they noted, and what I quoted here on page five, is they noted that there was a large amount of nitrifying bacteria that became evident. Nitrifying bacteria -- they traced it a couple of different ways.

They monitored the ammonia concentration in the makeup water in the cooling tower water

that would be in the blowdown. They also monitored the nitrates that came in, and the nitrates in the circulating water.

They noticed that the concentration of the nitrates in the circulating water was much greater than what they would expect by the sizes of concentration, in that the ammonia level was much lower. Part of that reaction between the nitrifying bacteria and ammonia is alkalinity as a byproduct.

So they monitored, really, three things in the cooling tower. And what they noticed was, yes, there was a significant reduction in ammonia due to this nitrifying bacteria.

As a result of the study they did demonstrate that the oxidizing biocide, the sodium hyperchloride, did control -- they weren't specifically looking at Legionella, they were looking at colony forming units, which is a measure of the bacteria. And they had a range that they wanted to control to.

And they were able to control the bacteria counts that they were looking at, and they still had the nitrifying bacteria present. Actually, why it's present, why it doesn't seem to

impact, is beyond my level of expertise. All I do know is that they were using the halogen-based biocide, and they were still seeing a large presence of the nitrifying bacteria.

MR. BRIGGS: Now, the report that you just mentioned, the study you just mentioned, is not an Exhibit, is that correct?

MR. SCHILLING: It is not.

MR. BRIGGS: But it helped to formulate the basis of your opinion though?

MR. SCHILLING: There's not a lot of data out there on ammonia in cooling tower systems. And in our research we were trying to find something that would give us an idea of ammonia stripping rates and what ammonia does in the cooling tower. And this was a paper that we used as the basis of our estimate.

MR. BRIGGS: Now, I thought I heard you say that the study didn't look at Legionella in particular, is that right?

MR. SCHILLING: That's correct.

MR. BRIGGS: So you're kind of extrapolating from what you got out of the study, is that correct?

MR. SCHILLING: I don't know that I'm

really extrapolating, because Legionella is really not the -- the direct monitoring of Legionella isn't really a standard monitoring program that a tower would use. They'd measure the overall CFU's, the colony forming units.

MR. BRIGGS: Okay, but your conclusion is based in part on what you got out of this study, and in part by applying your professional judgment to the situation, is that right?

MR. SCHILLING: Yes.

MR. BRIGGS: If possible, I'd now like you to look at table PHB-1 in your testimony. You have that table?

MR. SCHILLING: Yes.

MR. BRIGGS: In the six cases that you looked at, if you held all the variables constant with the exception of PH, and you were to increase PH for any one of these cases, would the stripping rate go up?

MR. SCHILLING: Yes, it would.

MR. BRIGGS: I notice -- go ahead.

MR. SCHILLING: I guess I -- what would go up is the available ammonia, which would increase the amount stripped. So the --

MR. BRIGGS: The available ammonia to be

stripped would increase?

MR. SCHILLING: That's correct.

MR. BRIGGS: I notice in your calculations that the highest PH you use is 8.0, correct?

MR. SCHILLING: Yes. That's an average PH value.

MR. BRIGGS: Do you know what the expected PH is for the Palomar facility?

MR. SCHILLING: Well, the PH is going to be controlled within a range.

MR. BRIGGS: What's the range, as you understand it?

MR. MILLER: I think what we might do is address that in Mr. Rowley's testimony that you suggested, we might put in the event in the rebuttal, so we could address that at that point?

MR. BRIGGS: Actually, I think it's appropriate to get into it at least a little bit now, and maybe we need to have Mr. Rowley now.

But if this assessment is based on a certain assumed number for PH -- actually, let me ask my last question on this, and then if Mr. Rowley is the appropriate witness, we'll ask him.

Since you used 8.0 as the highest PH,

could Palomar operate if a condition from the CEC was that it could not exceed 8.0 with its PH?

MR. SCHILLING: I'd like to have Mr. Rowley respond to that, as the operator.

MR. BRIGGS: Okay.

HEARING OFFICER GEFTER: Mr. Rowley, you're still under oath.

MR. BRIGGS: I have one separate question for Mr. Schilling. Would it be better to go to Mr. Rowley and come back, or do my other question?

HEARING OFFICER GEFTER: Why don't you do your question for Mr. Schilling, and then we'll go on to Mr. Rowley.

MR. BRIGGS: Okay. Mr. Schilling, if you could look at Exhibit 91, page 16 please. The first bullet point there indicates that some Los Angeles area refineries use nitrification to remove ammonia in the reclaimed water. I'm just wondering whether you considered the removal of ammonia as a measure to protect public health in the analysis that you performed?

MR. SCHILLING: We did not consider a removal treatment process. We really didn't feel it was necessary to remove the ammonia in the

makeup to the cooling tower, so there is no ammonia removal process.

MR. BRIGGS: Okay. So removing the ammonia wasn't part of your analysis?

MR. SCHILLING: That's correct.

MR. BRIGGS: Mr. Rowley, did you want to respond to my question about the PH range?

MR. ROWLEY: Would you like to repeat that, please?

MR. BRIGGS: Yes. In the analysis that Mr. Schilling did, the highest PH range is 8.0, and he said that's an average. And an average suggests to me that it could be higher or lower. I'm trying to get a sense of what the highest PH would be.

As Mr. Schilling said, if the PH were to go up, there would be more ammonia available for stripping. And so, in order to have a full sense of what might happen at the plant, I'd like to get a sense of what the likely PH is going to be, at least on the high end?

MR. ROWLEY: 8.0 is a reasonable, conservative average for PH. And Mr. Schilling is correct, that a PH does fluctuate up and down. As I understand the testimony from the various

witnesses, as the PH goes down the ammonia stripping would be less, and as the PH goes up, the ammonia stripping would be more.

So, on an average basis -- and that's the basis on which the calculations were performed -- at an average of 8.0 PH then the emissions would be what they're going to be.

So I'm not sure exactly what you're looking for beyond that. Certainly all the testimony would indicate that this is a diminimus issue to begin with. So what are you looking for exactly?

MR. BRIGGS: Well, what I'm trying to figure out is what's the highest PH that could be in the water your using for cooling at any given time?

MR. ROWLEY: At some instant?

MR. BRIGGS: Yes.

MR. ROWLEY: I couldn't say.

MR. BRIGGS: But do you know -- and this question will probably draw an objection, but hopefully it will be indulged -- do you know what the PH limitation is for the HARRF facility under its NPDS permit?

MR. BLAISING: I would object to that.

Again, that's documented public record. We accepted that into the record, and so its available to rely on as a document. It doesn't call for Mr. Rowley's interpretation of it.

MR. BRIGGS: What I'd then like to do is take a look at that document and ask Mr. Schilling whether a PH that is at the maximum level permitted by that permit would significantly change his analysis, since that's what HAARF could be authorized to discharge.

HEARING OFFICER GEFTER: Mr. Briggs, at this point I'm not sure where this line of questioning is going to take us, in terms of whether the cooling tower is going to be emitting ammonia. So, could you tell us where you're going with this?

MR. BRIGGS: Sure. Where I'm going with this is, if the HARRF can operate under its NPDS permit with, say, a PH of nine, Mr. Schilling has already testified that the amount of ammonia available for stripping would go up. And if it goes up significantly, that matters to the analysis, because there's more potential for ammonia.

And that's one of the issues that we've

been trying to get clear on in this case. So, it appears to me that the analysis has been done up to a PH of 8.0 , but there's a broader PH range that should have been considered, and I'm concerned that it wasn't considered. And I would like to know what Mr. Schilling's opinion is, if HARRF is operating at a higher PH.

HEARING OFFICER GEFTER: I think, more importantly, the testimony has indicated that stripping of ammonia is not a health risk. Dr. Greenberg already testified that ammonia being stripped from the cooling tower is not considered a health risk, and it was not included in the HRA. Now, maybe I'm mis-characterizing the testimony, but that's what I understood.

MR. BRIGGS: If that's the case, and you want to end this line of questioning, I will agree with that. My concern is, if the basic analysis doesn't go far enough, then it's possible that everyone else's analysis that's based on this analysis is incorrect. And I just want to make sure that that's not the case.

HEARING OFFICER GEFTER: Perhaps you could ask Dr. Greenberg if the PH were higher would there be more ammonia stripped that would

result in a health risk?

MR. BRIGGS: I'll do that. I was concerned that I'd get an objection about hypotheticals, but as long as that's okay I'll wait. I don't have any other questions for Mr. Schilling or Mr. Rowley.

HEARING OFFICER GEFTER: Thank you.

MR. BRIGGS: I do have questions for Mr. Greenberg.

HEARING OFFICER GEFTER: Thank you.

MR. BRIGGS: Mr. Greenberg, I'm going to ask you to look at Exhibit 107 in a minute, if you have it handy?

DR. GREENBERG: I do.

MR. BRIGGS: Could you look at page seven of Exhibit 107. The very last sentence talks about --

DR. GREENBERG: My Exhibit is labeled page 19 on the first page of Exhibit 107.

MR. BRIGGS: I'm sorry. I'm looking --

MR. KRAMER: It looks like maybe my documents weren't numbered correctly again. Let me show you what we think is 107. Can we go off the record?

HEARING OFFICER GEFTER: Off the record.

(Off the record.)

HEARING OFFICER GEFTER: Back on the record.

MR. BRIGGS: The version of Exhibit 107 that we just compared to staff's is the same document but in a different format. Mr. Greenberg, I'm talking about page 26 on your format, which is also numbered as page 7 on my format. There's a paragraph that begins with "chloramines do act"?

DR. GREENBERG: Yes, I see that.

MR. BRIGGS: The last sentence of that paragraph says "the familiar odor of chlorine around heavily chlorinated water is actually the odor of the volatized chloramines. All of this suggests" etc. etc. Do you see that?

DR. GREENBERG: Yes, I do see that.

MR. BRIGGS: Do you agree that there are odors from chloramines?

DR. GREENBERG: Yes. At the proper concentration, absolutely.

MR. BRIGGS: And do you, at the level you expect at Palomar, do you anticipate any odor from those chloramines?

DR. GREENBERG: I would not anticipate

that there would be any odor from the chloramine or from the ammonia source. I make that statement based upon my experience in viewing and visiting power plants around the state, walking around the cooling towers.

As an organic chemist and toxicologist in training I do have a good sensitivity to the smell of ammonia or chloramine. Once again, it's all concentration based.

MR. BRIGGS: Was any specific analysis for odor done in this particular case?

DR. GREENBERG: No.

MR. BRIGGS: My client has said, in testimony, that you ignored the ammonia stripping mechanism in your analysis. I just want to know whether, having heard Mr. Schilling's testimony on ammonia stripping, does your analysis change in any way?

DR. GREENBERG: No, and I believe I testified that, even if I were to assume the intervenor's calculations, I still do not believe there would be a significant acute or chronic health impact to either workers or the public.

MR. BRIGGS: If I could get you to look at Exhibit 106 now, which is titled "cooling water

chlorination?"

DR. GREENBERG: Yes.

MR. BRIGGS: On the second page of that Exhibit, in the center column toward the bottom, it says "for every one part per million of ammonia present, up to ten parts per million of chlorine may be required to establish free, available chlorine." You see that?

DR. GREENBERG: Yes, I do.

MR. BRIGGS: Do you agree with that statement, first of all?

DR. GREENBERG: I have no information to refute that. I would like to point out, however, that it says "up to ten parts per million." So that's a ceiling, as opposed to a floor.

MR. BRIGGS: Is it your opinion that Palomar will be able to meet that sort of ratio, given the testimony that you've heard?

DR. GREENBERG: Yes, indeed. Please keep in mind also that the residual chlorine that would be recommended by the Cooling Technology Institute, or by myself when my recommendation is made public, would be in the range of .3 to .7 parts per million residual chlorine.

So we're not even talking about a

swimming pool or a spa type residual chlorine in order to keep bacterial growth and Legionella growth to an absolute minimum.

HEARING OFFICER GEFTER: I want to interject just for a moment and ask either Dr. Greenberg or Mr. Balentine, where is the point of maximum impact that you look at, in terms of your health risk assessment?

Because if, when you were looking at the dispersion model and dispersion rate of TACS that would be emitted, say from the cooling tower, where would the point of maximal impact be, and is this entire line of questioning particularly relevant to that analysis?

DR. GREENBERG: I think the applicant that conducted the dispersion modeling which I reviewed would be best to answer that.

MR. BALENTINE: On the modeling, we have receptors throughout the area, and look at the point where all sources combined produce the maximum impact.

And at that location, for example for the cancer risk, the cooling tower contributed less than one percent of the overall impact at that maximum location. It's primarily driven by

the toxics coming out of the combustion stacks.

MR. GEESMAN: Where was the location?

HEARING OFFICER GEFTER: Can you identify that for us?

MR. BALENTINE: In the area we call the West Hills. It was -- let me try and find it here. It was in what we call the West Hills, that's approximately 2 kilometers west or southwest of the cooling tower or the plant location.

MR. GEESMAN: Do you have a street location?

MR. BALENTINE: No, there's no street location there.

MR. GEESMAN: So it's within the industrial park, or the --

MR. BALENTINE: No, it's off the industrial park. It's in an area of what we call elevated terrain, and so there's no residences there. It's just the unincorporated part of the, you know, undeveloped area to the west of the plant.

HEARING OFFICER GEFTER: Where is that in your testimony. Do you specify that location in your testimony?

MR. BALENTINE: There will be a map in our HRA that showed the location, I do not have that with me.

MR. GEESMAN: Staff also referred to that on page 4.7-12 of staff's final assessment and testimony.

HEARING OFFICER GEFTER: How does the applicant choose the point of maximum impact. How did you come on to that particular location?

MR. BALENTINE: The model chooses that for us. It goes through and additively adds the impacts of each individual source, and then it goes through and checks to where the sum of those impacts of all the individual sources is the maximum.

HEARING OFFICER GEFTER: Okay. So Mr. Briggs, you've heard the testimony now. You're talking about ammonia stripping. Testimony is that the impact from the cooling tower is less than one percent of all the possible impacts that would be emitted both from combustion and -- from the combustion stacks -- and from the cooling tower.

And so, within that context, where are you going with your line of questioning?

MR. BRIGGS: And so, my question for Mr. Greenberg, if HARRF were sending water with a PH of up to nine to Palomar, would that level of PH make enough ammonia available for stripping that it would change your analysis?

MR. MILLER: There is a relevancy issue here I'd like to raise. The incoming water, and this may be deduced through testimony, is not what remains in the tower. There is treatment to that, so that PH would not be relevant from what's coming from the HARRF.

HEARING OFFICER GEFTER: Do you have a witness who could testify to that?

MR. MILLER: Yes. I just thought I'd try to interject to speed us along.

HEARING OFFICER GEFTER: Okay. So, in other words, Mr. Rowley is going to answer the question instead of Dr. Greenberg, is that --

MR. BRIGGS: Well, since he's not the public health expert I'm concerned about the adequacy of his response. If someone could tell me what the maximum PH would be at Palomar, and then we can ask Mr. Greenberg for his assessment, I would be fine with that.

HEARING OFFICER GEFTER: Mr. Rowley?

MR. ROWLEY: I responded to the question on maximum PH already. As to the issue of --

MR. BRIGGS: I'm sorry. Remind me of what the response was?

MR. ROWLEY: My response was that an average of 8.0 is a conservative estimate on PH. It could be higher, it could be lower. The hypothetical or theoretical ammonia stripping would go up or down accordingly. But 8.0 I think is a reasonable, conservative average.

But as to the PH of nine coming from the HARRF and that water being delivered to Palomar, that's really not relevant because that's not the PH that we maintain in the circulating water. The circulating water PH is maintained at a set point that is independent of the PH of the water that we're receiving.

MR. BRIGGS: I'm not trying to belabor the point. But an average is a number between two extremes, and part of what determines average is how often you're at one of the extremes versus another.

I'm just trying to get a sense of where Palomar is going to be operating. You keep saying an average of eight, but it could go up to eight

and a half or nine, depending on how many chemicals you're adding. I just want to know if you have a sense of how high it goes?

MR. ROWLEY: I think nine is an extreme number.

MR. BRIGGS: Mr. Greenberg, if the PH were nine, would that change your analysis in any way?

DR. GREENBERG: It might change it quantitatively, but the bottom line would only be change if we're talking about a ammonia stripping rate three orders of magnitude greater.

And so, if we were going to go from PH eight or eight and a half, which I believe was Mr. Powers testimony -- I think his maximum PH was 8.5 -- and if it went from 8.5 to nine there would be a little more ammonia available for stripping, more ammonia would then be stripped.

The problem again, as I pointed out, is that I think both the applicant and the intervenor have failed to take into account the fact that the addition of hyperchloride is still going to reduce the ammonia, it has to, so there's still not going to be that much available.

You might have to add some more

hyperchloride to keep a residual chlorine level. All of these factors balance out, and what I have done is taken Mr. Powers number of a stripping rate here -- of 25 milligrams per liter, and I guess 135 tons of ammonia per year -- and looked at that in the context of acute and chronic health risk due to ammonia being stripped from the cooling tower, and have found that the airborne concentration, at a maximum, is going to be three orders of magnitude less than the acute and chronic reference exposure levels.

If the PH goes up one half a unit, to 9.0, given all the other variables, I can't see, given my background in chemistry, that it's going to make that big a difference in the amount of ammonia that will come out. I'll --

MR. BRIGGS: In short, there's just no public health concern, even if it goes up to nine for PH, right?

DR. GREENBERG: That is correct. Again, unless you have some other information that shows that somehow the entire water chemistry changes by that extra half unit and there's going to be gobs and gobs more of ammonia coming out, I mean we're talking like orders of magnitude more, we're still

in the realm here of insignificant impact.

MR. BRIGGS: Do you know how much sodium hyperchloride is going to be added by Palomar?

DR. GREENBERG: No, I do not.

MR. BRIGGS: That's all I have. We'll now put Mr. Powers on for direct if there's nothing else on rebuttal, or on cross?

HEARING OFFICER GEFTER: Do you have some redirect?

MR. MILLER: Yes, I do. I would like to just ask a couple of questions of Mr. Schilling, I believe. First is, your analysis was done on an annual average basis, is that correct?

MR. SCHILLING: Yes, that's correct.

MR. MILLER: So if there was a day of swing above 8.0 it wouldn't materially affect your results?

MR. SCHILLING: No. I calculated tons per year, and that would have really no effect on the total tons per year.

MR. MILLER: Thank you. And in your experience with cooling towers in the utility energy industry would you ever expect a cooling tower to operate at such a high PH as 9.0?

MR. SCHILLING: No, I would not. One of

the reasons is a cooling tower is in contact with air, that's the purpose of it. And what happens is it'll tend to pick up some carbon dioxide in there. It's unusual to have a cooling tower PH really much in excess of 8.4 or 8.5, just because of the carbon dioxide pickup.

MR. MILLER: And the average in your experience in many plants would be, as you assumed in your analysis, would be between 7.8 and 8.2, something like that?

MR. SCHILLING: 7.8 to maybe 8.2, sometimes even 7.5 to the 8.4, 8.5 range.

MR. MILLER: Thank you. Any questions?

HEARING OFFICER GEFTER: Okay. Mr. Powers, you have direct testimony?

MR. BRIGGS: Sure. Can I just offer a stipulation? That Mr. Powers doesn't need to go over his background and the stuff he did yesterday. Is that fine?

MR. KRAMER: That's fine.

MR. BRIGGS: Mr. Miller, you don't object to that?

MR. MILLER: I'm sorry, I --

MR. BRIGGS: I just propose a stipulation that Mr. Powers doesn't have to recite

his qualifications from yesterday. Or do you want them recited?

MR. MILLER: I guess I would like to hear his qualifications with regard to public health.

MR. BRIGGS: Mr. Powers, can you please describe your professional qualifications and training with regard to public health?

MR. POWERS: I would describe those qualifications in the context of my air emissions engineering background in evaluating air emissions from the cooling tower, and what could potentially be in those air emissions, that's the context of my experience.

MR. MILLER: And you do not have a chemistry degree or certification?

MR. POWERS: I do not.

MR. MILLER: Thank you.

MR. BRIGGS: Mr. Powers, can you briefly summarize your direct testimony?

MR. POWERS: Yes. Two main issues, quantity of ammonia emissions stripped from the tower, and the effectiveness of the biocide treatment program to prevent Legionella exposure from the facility.

MR. BRIGGS: When you considered the first issue, the quantity of ammonia emissions stripped, what did you find?

MR. POWERS: What I found was a range of emissions, which are indicated in the testimony, anywhere from, for average operation, 40-70 tons per year. And I do believe though that this is a good effort but an initial effort, that we're really just getting into this issue, and that I actually think that these estimates are probably a bit low, that would require additional work.

MR. BRIGGS: What makes you think they're low, and what sort of additional work needs to be done?

MR. POWERS: Well, at the risk of having an objection, just the additional investigation and contacts over the last couple of weeks, and other independent calculations that have been performed would seem to indicate that these might be low.

MR. BRIGGS: So calculations that you've run over the last couple of weeks suggest that the estimates are low?

MR. POWERS: No, these are calculations that have been done by independent, independent

calculations, checks.

MR. BRIGGS: I see. On the second issue, the effectiveness of the biocide, what did you conclude?

MR. POWERS: I think that the observations that Dr. Greenberg made were in my testimony, that the maintenance issues related to the cooling towers are real, and that's an area of debate. But the effectiveness of the biocide treatment program is our objective, this attempt to maintain a free chlorine residual.

And I think that Dr. Greenberg's observation is correct. His observation is that if you add sufficient chlorine you will bind that ammonia, you won't strip it from the tower, you'll bind it as chloramines, and that air emissions won't be an issue.

But the observation is -- and this was discussed yesterday as well -- based on the data that the applicant has supplied in table 24-5, which is their quantity of chemical stored onsite and the amount of reclaimed water that that would be using, it would appear that the dosage concentration of chlorine will be below five ppm.

The HARRF contains, is sending water

over with 25 ppm of ammonia. This document indicates that up to ten ppm of chlorine per ppm of ammonia will be necessary. Ten times 25 is 250, we have a dosage rate of five. My question is how do we bind ammonia if we're dosing it at almost two orders of magnitude less than what we would need to even approach having a free chlorine residual?

And so, your point is well taken. The chlorine will bind. But if we're only adding 1/100th of the chlorine we need to bind, how do we bind it? Either we end up with ammonia emissions, or we end up with a tremendous amount of chloramines.

And Exhibit 107 also indicates chloramines are highly volatile. They will strip before anything else strips. Then you've got a lot of odor in the area. But this is not just a swimming pool, this is -- we're talking about a dosage rate that's fifty times that.

And so what my observation is, is this opens a lot of questions. I think we have a fundamental issue here. Is a hyperchloride treatment program even possible with 25 milligrams per liter of ammonia there.

It would appear that an alternative like bromine might be possible, or, as in Exhibit 91, in L.A., they have a removal process. They get that ammonia out of there. Up there, they don't do it for public health, they do it to protect the condenser. They do it to protect it from premature stress cracking. And so we have a fundamental question here.

HEARING OFFICER GEFTER: Okay. Let me interject. What is the point? What are the impacts that you're seeking to mitigate, what are the public health ramifications of your concerns here?

MR. POWERS: Well, the public health implication would be if we need 250 ppm of chlorine to deal with the ammonia issue, the objective of bacteria cides, biocides is, as Dr. Greenberg stated, they want to maintain a free chlorine residual.

You want free chlorine floating around so it can kill all the bugs. Well, if all of your chlorine is --

(phone rings)

HEARING OFFICER GEFTER: Off the record.

(Off the record.)

MR. BRIGGS: So, Mr. Powers, can you sum up your final points with regard to public health?

MR. POWERS: Yes. The bottom line is there's not going to be near enough biocide added to the water to effectively control the bacteria; that the applicant simply didn't account for all the demand that the ammonia would require.

HEARING OFFICER GEFTER: Anything else?

MR. BRIGGS: No, that's it.

HEARING OFFICER GEFTER: Do we have cross-examination for the witness, Mr. Miller?

MR. MILLER: I guess the only question I would have of Mr. Powers is do you have any information on any significant experience with a modern power plant with regard to Legionella?

MR. BRIGGS: Is the question whether he has personal experience dealing with such a plant, or is here aware of such a plant?

MR. MILLER: I'm sorry, I didn't put that correctly. Let's start with the personal experience. Do you have any personal experience with it?

MR. POWERS: Could you please define the term modern?

MR. MILLER: Let's say a plant built

within the last ten years.

MR. POWERS: In terms of direct personal experience versus reading in the literature what the results are, I have experience with many modern power plants in the last ten years, not utility scale combined cycle gas turbine plants, but co-generation plants, and simple cycle power plants, yes.

MR. MILLER: And no experience, however, with any occurrence of Legionella which was attributed to the plant?

MR. POWERS: I have no direct experience with -- I'm not sure if the question is have I been exposed to Legionella, or if these --

MR. MILLER: No, I'm just asking you are you aware that there's been a problem?

MR. POWERS: No, the extent of the research, the best research I've seen has been done by Dr. Greenberg, and is included in the FSA.

MR. MILLER: I have no further questions.

HEARING OFFICER GEFTER: Mr. Kramer?

MR. KRAMER: Mr. Powers, do I understand your concern to be that you don't think the applicant can perform as it would be required

under Public Health One with the biocide program?

MR. POWERS: That is correct.

MR. KRAMER: Thank you. No further questions, but we'll have a little bit of rebuttal.

MR. MILLER: I guess I would have a rebuttal followup, too.

HEARING OFFICER GEFTER: Mr. Miller has rebuttal, and then Mr. Kramer.

MR. MILLER: I'll start with Mr. Rowley and ask him that question. Do we have any doubt that we can perform adequately with the condition Public Health One?

MR. ROWLEY: We will perform in accordance with the condition that's stated as Public Health One, and specifically we will mean a slight chlorine residual because we need to, both for health reasons as well as for plant efficiency reasons.

There was an earlier question about whether the plant would take measures to keep the cooling tower clean, and I can tell you that it's in our own economic interest to do so. It's one of the few things that we can do in the power plant to maintain and enhance efficiency, is to

keep the circulating water system clean, including the cooling tower. So that is a high priority for the plant.

MR. MILLER: No further questions.

HEARING OFFICER GEFTER: Thank you. Mr. Kramer.

MR. KRAMER: Dr. Greenberg, do you have any reason to believe or expect that the applicant will be unable to comply with condition Public Health One?

DR. GREENBERG: No, I do not. And I understand Mr. Power's concern on that, and I think also the committee understands that when we propose conditions of certificate that they are performance oriented, or performance based as opposed to specification based.

The applicant will have many tools at its disposal in order to meet the performance standard as described in Public Health One. Hopefully, I'm not at risk of being objected to when I state that I have discussed this with the compliance project managers. I have made them aware of this, because this is one of the first siting cases where we put this condition in. There have been maybe three or four before that.

So the CEC CPM's will also be conducting inspections now on the cooling water chemistry and the cooling towers.

MR. KRAMER: And the condition Public Health One requires the applicant to submit a plan for approval prior to operation of the cooling tower, correct?

DR. GREENBERG: That's correct.

MR. KRAMER: And so you or some other staff will review it to see if it's adequate?

DR. GREENBERG: That is correct.

MR. KRAMER: No further questions.

HEARING OFFICER GEFTER: Mr. Briggs, do you have rebuttal?

MR. BRIGGS: Just a brief --. Mr. Powers, did you want to clarify or respond to something?

MR. POWERS: Yes. I do need to clarify that, and Dr. Greenberg is correct. The performance specification isn't detailing a particular biocide protocol, and he is right that you set out a free chlorine or free halogen residual that you want to see, and it's the applicants job to get there.

My point is, with the monthly quantities

of biocide usage, sodium hyperchloride, that they show in their application, there is no possible way they could get anywhere near that free chlorine residual.

So, I would agree that you are correct, it is a performance fact, they will have to revise their approach in order to get there, that's my point.

HEARING OFFICER GEFTER: I'm going to close the testimony on public health. The parties can move their Exhibit then to the record at this point.

MR. MILLER: I would move the applicant's Exhibits as stated previously in introducing the direct testimony of Mr. Balentine and Mr. Schilling, including so much of Exhibit 35 as constitutes their testimony.

HEARING OFFICER GEFTER: Hearing no objection, the applicants Exhibits on public health are received into the record. Staff?

MR. KRAMER: Staff's sole Exhibit would be Exhibit 50.

HEARING OFFICER GEFTER: Hearing no objection, Exhibit 50 related to public health is received into the record. Intervenor, do you have

any additional Exhibits that you're offering into the record?

MR. BRIGGS: Nothing that isn't already in the record.

HEARING OFFICER GEFTER: All right. Also, for housekeeping, and we can do this later or we can do it now, the applicant didn't move your biology Exhibits at the time you identified them. So, if you want to do that now?

MR. MILLER: Yes, I had a note to do that, so thank you. I'd like to move the portion of Exhibit 35 which constitutes Mr. Merkel's direct testimony and the Exhibits cited therein into the record.

HEARING OFFICER GEFTER: Hearing no objection, the applicant's Exhibits on biological resources are received into the record. Staff?

MR. KRAMER: 50 and 51.

HEARING OFFICER GEFTER: Hearing no objections, staff's Exhibits with respect to biological resources are received into the record as well.

The next topic that we have is visual resources. We have a representative for the Chamber of Commerce for the city of Escondido who

requested to address us at 11:00 a.m. So I'm going to give you that time right now. And if you would like to come forward and address us at this time. Mr. Sam Abed, and would you spell your name for the record please?

MR. ABED: Sam Abed, A-b-e-d. I am with the Escondido Chamber of Commerce. Thank you for the opportunity to make a few comments here. We have been involved with this project with Sempra for many, many years. Sempra has made several representations to our board of directors and we believe and support that this project, the board of directors have unanimously supported this project.

We see two major benefits here. First, the energy that will be provided not only to the local businesses but to the region, secondly the jobs creation. That's our motivation.

Escondido's economy is mostly a retail-based economy. We do well when the economy is good, we suffer when the economy is bad. And now we are going through a slow economic time. The jobs creation is basically a big, big opportunity for Escondido to add balance and diversity to our economic base.

The power plant and the Escondido retail involvement center should be viewed as one project, because we believe if the power plant is not approved I don't think we see the 4,000 jobs here.

This project will probably be the one single significant impact to Escondido's businesses. The timing is extremely critical because the state is facing a financial crisis today.

We urge the Commission to approve this project, and hopefully we'll leave the politics out of the process. This project represents a lifetime opportunity for Escondido's economic future and success. Thank you very much.

HEARING OFFICER GEFTER: Thank you very much for being here. Roberta Mendonca, our Public Advisor, would also like to make some comments at this time. And since there are still members of the public present, we'd like her to speak now rather than when everyone leaves.

MS. MENDONCA: Thank you, Ms. Gefter. Basically I wanted to get on the record some background on the public advisors outreach in this project, and background on the public's

participation.

Application was actually filed at the Commission in November of 2001, and that's a green light for my office to get involved in scoping to determine how we might best approach the community and discern who might want to be participating.

So, as part of the scoping, we prepare what becomes our basic tool, a one-page project description, and we use this description throughout in public outreach.

We also contact local public libraries, and in this case we contacted three libraries -- the Valley Center Public Library, the East Valley Branch Library, and the Escondido Public Library. And we provide them with a copy of the application, 25 of our project descriptions, and a poster they can put up notifying members of the public where they can find the AFC in their library.

We also contacted the library again and request that they complete a postcard telling us their hours of operation and if they have a computer that members of the public can use for further communication on the website, at the Palomar website.

We did a newspaper outreach. We inserted 18,000 copies of an English/Spanish announcement of the informational hearing and site visit in the North County Times.

We contacted the local schools, and we had 900 bi-lingual inserts into a Nob Hill Elementary School handout in San Marcos, announcing informational hearing and site visit.

We sent 3,500 of these flyers to the Escondido Union School District, which were distributed to three local schools.

In addition, my office did a little mailing to 320 announcements to the previous Energy Commission mail list for the Calpete (sp) project, which was local in this area.

My office handled 50 bus reservations for the informational site visit, which was held on March 21st, 2002. We had excellent public participation at that informational hearing and site visit, including my office handled four phone calls, which we subsequently docketed information from those contacts on the public's concerns with the project.

There was a committee change in June, 2002, when Commissioner Geesman assumed the role.

We announced that in our communications with the public.

One member of the public who has been participating, not as an intervenor but his interest has been long and involved, was Mark Rodriguez. And as of November my office has facilitated for him at least nine written documents, and he has continued to follow the project earnestly.

We have two intervenors in the case, only one of them is formally participating today, and I will let Mr. Powers speak to his involvement and activity.

Pretty much, I would like to docket my comments, and have that be a part of your record. Thank you very much.

HEARING OFFICER GEFTER: Thank you Ms. Mendonca. Do you have a public comment?

MR. MORILL: Yes, I do.

HEARING OFFICER GEFTER: Okay. You spoke yesterday, do you have anything else to add?

MR. MORILL: Yes.

HEARING OFFICER GEFTER: Okay, please come forward. And also, indicate your name again for me.

MR. MORILL: Greg Morill. I have a question. Does the CEC have any say on the configuration of the landscaping and the buffer zone and all of the things that Mr. Rowley has spoken to me about?

HEARING OFFICER GEFTER: That's very good timing, because we're going into the visual resources aspect of the project right now. And so, as soon as you are finished with your comments, you'll hear all about it.

MR. MORILL: The one thing that I would like to say is, not that I don't trust Sempra, but I would like what Mr. Rowley had indicated to those of us that are residents will be part of the record.

He has said that there will be a buffer, he has said that there will be visual mitigation, certain height levels, all of that stuff that's going to come out now is going to be in the record.

And, I just wanted to make sure that, as residents, we are being protected not only from the health issues, but also from the land issues that are going to be brought up, because as you can imagine, that's going to impact value of my

home, aesthetics, and the sort of thing that will make it livable.

HEARING OFFICER GEFTER: Thank you very much. Please stay so you can hear the discussion.

MR. BRIGGS: Ms. Gefter, can I briefly just commend Ms. Mendonca. Her office has been extremely helpful in getting me information and helping me get up to speed in a relatively short period of time. And, you probably already know, they do a great job, but I wanted to be on the record that they do a fantastic job.

HEARING OFFICER GEFTER: Well, thank you very much, and I'm sure Ms. Mendonca appreciates your comments. Thank you. All right, we're ready on visual resources. Mr. Miller?

MR. MILLER: Thank you. I would like to facilitate us moving through this quickly. The two witnesses on visual that have pre-filed testimony are Mr. Torres and Mr. Balentine.

Mr. Torres did the visual simulation work for the preparation of the AFC. I don't believe any of that is at issue with regard to dry cooling.

Mr. Balentine did the clean modeling as part of his general modeling that he's done for

all aspects of the project, and I don't believe that is at issue either. The interpretation of that as to what it's significance might be is what Mr. Powers has raised.

So, if there's no objection, I would like to proceed by declaration for Mr. Torres and Mr. Balentine, both of whom are here, in the event that there are questions.

And then, following that, we addressed yesterday, if you would recall, actually in quite a lot of detail, the various aspects of what would fit on the site and how it would look. And so -- and Mr. Rowley was involved with that -- so we presented a good bit of that information already.

What I would propose is that we just kind of summarize that, and not re-do that. And then we had a couple of Exhibits that were mentioned yesterday that we would like to move in, including the site elevation I believe we agreed would be accepted. So, that's my plan if that's acceptable.

HEARING OFFICER GEFTER: That's fine. Do you have --

MR. BRIGGS: I was simply going to suggest, because of Mr. Morill's request, to hear

from Mr. Rowley. Since we covered so much of this yesterday, even if we either minimize the summary or dispense with it and incorporate yesterday's discussions, that would be fine for our purposes.

And then give Mr. Rowley more time, perhaps, to talk about some of the concerns that members of the public have raised, since they are here to hear it. In other words, we can give up some of our time on this issue to address that.

HEARING OFFICER GEFTER: In order to expedite that, I was going to suggest -- Ms. Mendonca, I have a question for you. Exhibit 39, which is from the applicant, it actually incorporates the ERTC's specific plan, the architectural requirements for the project, and the landscaping requirements.

It also shows the condition that is proposed. And if we could make a copy, and you could give that to Mr. Morill he would see that in fact the concerns that he has are going to be incorporated into a condition. So, rather than --

MS. MENDONCA: Sure. I just gave him a copy of the applicant's testimony, and the staff's testimony, and I'll be happy to you're planning to get back to me, or you'd like me to provide him a

copy?

HEARING OFFICER GEFTER: I'd like you to provide him a copy. If you can make a copy of what I have, or we can give it to him later. And that way he will have all the written testimony on the subject and we can save some time. Okay?

MS. MENDONCA: Thank you.

HEARING OFFICER GEFTER: Thank you very much.

MR. MILLER: Ill proceed then, if that's agreeable. I would like to identify the signed declaration testimony then of Edward Torres, T-o-r-r-e-s. Which was included in our pre-file testimony.

And within that testimony, Mr. Torres sponsors Exhibit One, AFC, Section 5.10. And also, along with Howard Balentine, Exhibit 2A, data responses 70 through 114. Exhibit 2D, data responses 81 through 85, 102, 107. And Exhibit 2F, data response 110. So I would propose that Mr. Torres' testimony be accepted as part of Exhibit 35, along with the sponsored Exhibits.

HEARING OFFICER GEFTER: No objection?

MR. BRIGGS: No objection.

MR. KRAMER: None.

HEARING OFFICER GEFTER: The Exhibits on visual resources offered by the applicant are received into the record. And let's have staff do their direct?

MR. MILLER: I did that to do the same declaration introduction for Mr. Balentine.

HEARING OFFICER GEFTER: All right. Let's go through that.

MR. MILLER: Within the pre-file testimony submitted was the signed declaration and testimony of Howard Balentine, with regard to visual resources.

Within that testimony Mr. Balentine sponsored also Exhibit One, Section 5.10, visual resources with respect to visible plume modeling, and also Exhibit 2A, data responses 110 through 112. Exhibit 2F, data response 110.

I would propose that Mr. Balentine's testimony be included within Exhibit 35 and the references that it speaks of added into the record.

MR. BRIGGS: No objection.

MR. KRAMER: No objection.

HEARING OFFICER GEFTER: That Exhibit is also received into the record, thank you.

MR. MILLER: Okay, with that I'm going to turn to Mr. Rowley. And maybe it would actually be better to initially answer Mr. Morill's questions and get that taken care of.

MR. ROWLEY: The design aspects of the project that --

MR. BRIGGS: Joe, can you speak closer to the mike, we can't hear you?

MR. ROWLEY: The design aspects that Mr. Morill was alluding to, for example the buffer area, and also certain aspects of the Palomar Energy Project, are actually memorialized in the city of Escondido's Process for the Escondido Research and Technology Center.

For example, the buffer area is situated along the west boundary of the ERTC that is not contiguous with the Palomar site. But over on the west boundary of the ERTC, and this is right over nearby Greg Morill's home there on Allenwood Lane.

So, I guess there's no problem with reiterating what's in the specific plan. The buffer area is about 220 feet wide. It will start at an elevation even with Allenwood Lane, and rise to an elevation that's over 50 feet higher than Allenwood Lane, and then drop back down at least

ten feet.

So there will be an artificial ridge line that separates the homes along Allenwood Lane, and also Chardonnay Way. There will be a ridge line that separates that neighborhood from the Escondido Research and Technology Center.

And that ridge line is roughly 220 feet wide and 50-plus feet high on the neighborhood side, and at least 10 foot high on the business park side. In addition to that, there's a setback between that ridge line and the buildings such that the line of sight between the homes in the neighborhood are effectively cut off by the land form so that they don't see in any substantial way the industrial buildings that are on the other side of the ridge line.

Those are all aspects that are memorialized in the ERTC's specific plan that was approved by the city of Escondido. And there are additional factors there that are included in the conditions to the specific plan that go to details on landscaping and so forth, and those documents were all approved by the city on November 25th of last year.

In addition to that, the Palomar Energy

Project will have features designed into it to screen the project from view. The primary features are that the site elevation that we're starting with, that is the planning area one elevation provided by the ERTC, is up to 80 feet below the ridge line that separates the business park from the power plant site.

And of course that ridge line also separates the power plant from the neighborhood further west. I guess this may be a little confusing. That means that there's actually two ridge lines separating the power plant site from the neighborhood.

There's the up to 80 foot high ridge line immediately west of the Palomar Energy site, and then there's that buffer area ridge line that I spoke of earlier that is contiguous with the neighborhood over on the west side of the ERTC site.

The Palomar Energy site will be in compliance with all the requirements of the ERTC specific plan with regard to landscaping and design and so forth.

MR. BRIGGS: Mr. Rowley, in addition to the general requirements of the city on visual,

related to the visual aspects of the ERTC, there are of course detailed conditions in the FSA that directly apply to the power plant, and I'm sure we'll hear from staff on that so I won't tend to summarize them.

But just to balance the testimony, I just thought that I'd point out the obvious, that that's the first place to look for these requirements.

MR. ROWLEY: Right. I was kind of focusing on the ERTC requirements because those are the ones that really affect the neighborhood directly. The ERTC is contiguous with the neighborhood and I think is the greatest interest.

And we have been part of that process with the ERTC developer and the neighbors to ensure that there's an appropriate transition between the industrial land use within ERTC and the residential land use further west.

But we will comply with all of the conditions of certification, as noted in the final staff assessment. And those largely take the design objectives that we had and put a finer point and compliance conditions on those, to make sure that wee do it exactly the way that we had

proposed.

MR. BRIGGS: I guess the only other thing I would ask at this point -- is there anything visual not covered in the initial round of testimony yesterday, that would be useful to add, or do we need to do that? Is there anything you didn't' touch upon already?

MR. ROWLEY: I would just perhaps quote one thing from Exhibit 39. The city of Escondido's design review board took a look at the power plant specifically. They looked at the ERTC in general and the power plant specifically, and spent quite a bit of time looking at the power plant.

In a city of Escondido staff report, this is a quote, "the design review board noted that it would be inappropriate to try and cover up the power plant with clouding or other material. It should be recognized for what it is, and be as unobtrusive as possible by using low gloss subdued paint, and by lowering the structure as much as possible on the site."

And I think that was a reflection of the input that we received very early on from Greg Morill and the other neighbors and it was echoed

by the design review board. And I feel like it's really been a team effort, with the project and the community to result in a design that achieves those visual aesthetic objectives.

MR. MILLER: And finally, in the course of our proceedings yesterday, identified two additional exhibits that are relevant to visual. And that was Exhibits 39 and 40. And so I move those at the appropriate time into the record.

HEARING OFFICER GEFTER: Any objection to receiving the applicant's Exhibits into the record on visual resources?

MR. BRIGGS: No objections. And I think the additional ones that we had were moved in yesterday.

HEARING OFFICER GEFTER: The applicant's Exhibits as identified by Mr. Miller on visual resources are received into the record.

MR. BRIGGS: Can I clarify one thing with Mr. Rowley?

HEARING OFFICER GEFTER: You have a cross-examination for Mr. Rowley?

MR. BRIGGS: No, on what he was just reading. What Exhibit number were you just reading from?

MR. ROWLEY: That was from Exhibit 39.

MR. BRIGGS: Thanks.

MR. KRAMER: I have a bit of clarifying cross, if now's the time?

HEARING OFFICER GEFTER: Yes.

MR. KRAMER: Mr. Rowley, am I correct that Exhibit 39 is a letter that the applicant wrote to staff suggesting some changes to the conditions?

MR. ROWLEY: Right. And as a preamble to the changes there is some text there that give some background. And in that text there is a quote from the staff report.

MR. KRAMER: Okay. And staff responded to that by way of the addendum to the staff report, which is Exhibit 51, correct?

MR. ROWLEY: Yes.

MR. KRAMER: And they agreed to modify condition vis 9 to deal with some of your concerns?

MR. ROWLEY: Yes. Vis 9 was modified to reflect what was submitted by the city. I worked directly with John Brindle at the city to finalize the recommended revisions to vis 9, and Mr. Brindle submitted those to the CEC, and at a

subsequent workshop it was modified slightly to take out one sentence, which we agreed to. And I checked back with Mr. Brindle, and he also agreed with that.

MR. KRAMER: Okay. So the applicant is in agreement with the version of vis 9 that was proposed in Exhibit 51?

MR. ROWLEY: Yes.

MR. KRAMER: Okay. And I think I asked this yesterday, but to the extent that requests that were made in Exhibit 39 were not acceded to or agreed to by the staff they are no longer on the table, so to speak, correct? They've been withdrawn?

MR. MILLER: That's correct.

MR. KRAMER: Thank you.

HEARING OFFICER GEFTER: Do you agree with that, Mr. Rowley?

MR. ROWLEY: Yes.

HEARING OFFICER GEFTER: And you have direct testimony, staff?

MR. KRAMER: Let me just swear Mr. Clayton in?

HEARING OFFICER GEFTER: Yes. Swear the witness, please.

Whereupon,

MICHAEL CLAYTON

was called as a witness herein, and after first having been duly sworn, was examined and testified as follows:

MR. KRAMER: Can we dispense with Mr. Clayton's qualifications and stipulate that he is an expert in visual matters?

MR. MILLER: We will so stipulate.

MR. BRIGGS: As will we.

BY MR. KRAMER:

Q Mr. Clayton, could you state your name and spell you last name for the record?

A My name is Michael Clayton, C-l-a-y-t-o-n.

Q Okay. And did you prepare the visual section of the staff assessment?

A Yes.

Q And are you familiar with the changes to visual 9 in the staff assessment addendum?

A Yes, I am.

MR. KRAMER: I think we can just dispense with going through the uncontested issues, as did the applicant.

MR. MILLER: We agree to that.

BY MR. KRAMER:

Q Mr. Clayton was actually not involved in the wet versus dry analysis directly. He was here yesterday for the testimony and did get a chance to look at those Exhibits.

Mr. Clayton, did you want to say anything specific in response to what you heard yesterday on the visual issues. Do you have anything to add, in other words?

A Not really. Not having participated in the original analysis of that aspect of the project, I really can't comment much on it because of the way our process of visual analysis works.

HEARING OFFICER GEFTER: Are you speaking about the cooling tower plume issue?

MR. KRAMER: No, that's another issue that he does need to address. And I think the main reason he's here is because at the pre-hearing conference a question was raised about the analysis of plumes. I was about to use the term threshold, but that's a loaded term in viewing this context.

MR. KRAMER: So, Mr. Clayton, could you explain how staff goes about the process that you go through, the steps to analyze the plumes from

the cooling tower for a power plant project, and then how that applied in this particular case?

HEARING OFFICER GEFTER: And how the staff derived the significance threshold?

MR. KRAMER: And I'm not sure we would even call this significance threshold, but he'll probably get to that.

HEARING OFFICER GEFTER: All right.

MR. CLAYTON: Let me describe the process whereby the ten percent number came about. Staff has been, for approximately two years, developing the visual analysis methodology, which includes analysis of the project's vapor plumes.

We convened a series of internal workshops with both visual resources staff and visual resources consultants to develop the methodology.

And specific to vapor plume analysis, what we first did was we eliminated hours that you would have poor visibility. So we eliminated timeframes where you would have either rainy conditions, we eliminated nighttime hours, we eliminated low visibility conditions.

So we were focusing in on time periods where you would have good visibility, and where

you, in effect, would be able to see a plume if a plume was present.

We ended up, essentially, also focusing in on a calendar time period, which was the time of the year when we would most likely expect to see vapor plumes if they were going to occur.

So, again, we focused the timeframe in on the primary timeframe of concern, and that is where we came up with the seasonal, meaning in this particular case and in most cases for the power plant projects in California, November to April timeframe, with no rain hours, no fog hours.

Then once we had that universe of hours, so to speak, staff would go in and conduct a modeling evaluation of those hours to determine the frequency that plumes would occur during that time period.

Now, in the process of developing the methodology, we looked at real data sets, real plume data sets, to get a sense of, a good feeling of the distribution of plume sizes associated with frequencies.

And what is apparent is that larger plumes are less frequent, smaller plumes are more frequent.

And so we looked at the various percentages, and we ultimately arrived at the level of ten percent, meaning what plume that occurs ten percent of the time was considered to be not the maximum impact and not the maximum plume or the average plume, but we considered to be representative of the increment where we would see a reasonable worst case plume.

There will be larger plumes, or there can be larger plumes that occur at a much lower frequency and there will certainly be smaller plumes that occur at a much larger frequency.

The ten percent was considered a good, if you will, compromise between frequency and size, because when we're doing the actual analysis of significance we need to evaluate both of those factors. Not only how big it is, but how often is a viewing public going to see that.

So our conclusions were that ten percent was a reasonable cutoff in terms of, we'll use the term threshold, that indicated a reasonable worst-case scenario.

That threshold is not a significance threshold, that is simply a threshold that states that if we don't see plumes at least ten percent

of the time then we are going to consider the impact not to be significant. And at that point, if that is the case, which is the case for this project, we do not do any further analysis.

The modelers have done their work. They have done the analyses to determine the frequencies. They provide the frequency information to the visual analysts, and if it's less than that ten percent that's basically where the analysis stops, and the conclusions are that the impact is not significant.

If, however, the frequency of plume formation is greater than ten percent, that does not necessarily mean that the plume is going to be significant visually, it simply means that we take it to the next step of analysis.

And the next step includes analysis by the visual analyst, we take -- in that situation the modelers will have developed size characteristics for the plume -- we will then be able to take that information, go out in the field, and from the various viewpoints assess the likely impact of that kind of plume and it's persistence.

We also request information from the

modelers regarding other plume characteristics like opacity. In some cases we might have very wispy plumes, which are not persistent and less visible than highly opaque plumes.

So we take all that information, we go out in the field and do a preliminary analysis. Based on that, we may then request simulations to be done. And that request goes up the ladder with the project management, and a determination is made as to whether or not a plume simulation will be done.

If that is decided to be done, then that gets handed off to the person who is actually going to do the simulation. That simulation is then provided back to the visual analyst again, and based on all that information -- the original modeling, the simulation, the field analysis -- we make a determination as to whether or not the plume occurrence would be significant.

And that's basically how we arrive at plume impact. Significance, and sort of a trigger -- which is really what the ten percent is, it's really a trigger to do further analysis or to not do further analysis.

MR. KRAMER: And again, here the trigger

was not pulled, so to speak, and you did not have to conduct further analysis?

MR. CLAYTON: That's correct.

MR. KRAMER: I hope that answers the question. That's all we have.

HEARING OFFICER GEFTER: Thank you. Any cross-examination?

MR. BRIGGS: Just a couple of quick questions. Even if the visual impact isn't significant there's still a visual impact?

MR. CLAYTON: Correct.

MR. BRIGGS: And is is the case that you didn't look at the worst-case scenario in terms of size or opacity of the plume?

MR. CLAYTON: Worst-case, you have to sort of define what worst-case is. Do you mean the size -- you can look at it, again, from the two different angles, frequency and size -- one can say the worst-case plume is the largest plume, which would occur the least frequent amount of time.

Or you can say, you can make an argument that the worst-case scenario is the size plume or the plume that is present the greatest amount of time.

So that's why we sort of narrowed it down to this ten percentile, to get to what we consider to be a reasonable worst-case, and use that as a trigger as to whether or not we needed to look in more detail at the resulting vapor plume.

MR. BRIGGS: So you're balancing a number of factors and coming up with the plume that you actually analyze, is that right?

MR. CLAYTON: Correct.

MR. BRIGGS: Okay, that's all we have.

HEARING OFFICER GEFTER: Thank you. Does the intervenor have any direct testimony?

MR. BRIGGS: We don't have anything to add, other than what's gone before.

HEARING OFFICER GEFTER: So we're going to close the topic of visual resources, and all the Exhibits that are offered on that topic have been received into the record.

MR. KRAMER: I'm not sure if we've formally said which of those ours would be, but that's 50 and 51.

HEARING OFFICER GEFTER: 51 and 51, thank you. All right, the next topic is land use. I know that Mr. Brindle from the city has been

waiting patiently all morning, and if you could just take a seat up here next to Mr. Blaising, the city's attorney?

MR. MILLER: Would it be possible to take about five minutes?

HEARING OFFICER GEFTER: Yes. Off the record.

(Off the record.)

HEARING OFFICER GEFTER: Back on the record. Applicant is ready to go forward on land use?

MR. MILLER: Yes, we would like to proceed by declaration on land use. Our witness is Mr. Arrie Bachrach, and that's A-r-r-i-e B-a-c-h-r-a-c-h. Within our pre-file testimony was included the signed declaration and testimony of Mr. Arrie Bachrach. Within that testimony there are a number of Exhibits sponsored.

They include Exhibit 1, AFC Section 5.7 and Appendix A. Also Exhibit 15, a memo of understanding between the city of Escondido and the California Energy Commission staff.

Exhibit 21, resolutions of the Escondido City Council approving the ERTC-specific plan, certifying the final ERTC Environmental Impact

Report, and approving the ERTC mitigation monitoring program.

Exhibit 22, the city of Escondido final Environmental Impact Report for the ERTC-specific plan, and then Exhibit 24, city of Escondido ERTC mitigation monitoring program. And Exhibit 31, applicant's pre-grant conference statement, which includes as a table a recitation of some of the city's conditions.

And Exhibit 33, the ERTC-specific plan itself. And with that I propose that the testimony of Mr. Bachrach and sponsored Exhibits be admitted by declaration and moved into the evidentiary record.

HEARING OFFICER GEFTER: Hearing no objection, the Exhibits on land use for the applicant are received into the record.

MR. MILLER: Thank you. We also had discussed at the pre-hearing conference that it would be helpful to have a representative of the city to provide additional background summary on the previous ERTC process, and with us is Mr. John Brindle, who is Assistant Planning Director -- I believe is the correct title -- of the city of Escondido.

So I'll call upon Mr. -- and I guess he does need to be sworn, so we should do that first.

Whereupon,

JOHN BRINDLE

was called as a witness herein, and after first having been duly sworn, was examined and testified as follows:

BY MR. MILLER:

Q Thank you. Would you proceed.

A For the record, I'll briefly summarize the actions taken by the city of Escondido that will bear on the land use compatibility of the Palomar project. The Palomar project was one of two options that were approved for one of the sub-areas of the 208 Escondido Research and Technology Center, known as the ERTC.

The approved general plan amendment to the applicable specific plan area text of the general plan was developed recognizing that a power plant would be one of the options in the park. Our city council unanimously approved a specific plan, map and text, that included the Palomar project as one of the options in the ERTC.

Along with that approval, it included adoptions of the development standards and design

requirements for both the Palomar project and the alternative use, which was a light industrial set of land uses and development standards.

The Palomar project would be consistent with the approved grading design and lot layout of the vesting tentative subdivision map, which is approved for the ERTC. Additionally, the Palomar project was addressed in several of the terms of the approved development agreement.

During the city's process there is a number of opportunities provided for public input. Members of the public were able to comment in the public workshops, EIR public review period, the designer view meeting, public hearings before both the planning commission and city council. Copies of the specific plan and staff reports were also posted on the city's website.

Initial project submittal addressed many of the land use issues, since the applicant had met with surrounding neighbors and accommodated many of their concerns. The design and operation were described and assessed in the project EIR, and the city staff reports, along with the other components of the ERTC project.

Finally, EIR was certified in November

2002, and reflected input from the CEC staff, wildlife agencies, and members of the public.

Early in the process memorandums of understanding was approved that formalized the coordination between the CEC staff and the city of Escondido. The city and CEC staff has maintained dialogue during the city's review process, and we jointly have reviewed the administrative drafts of the EIR.

The ERTC project was unanimously recommended by the design review board, planning Commission, and approved by the city council. We've reviewed the proposed staff conditions, proposed by the CEC, and agree that they are functionally equivalent to those of the city.

With respect to biology, we are aware that further negotiations of the agencies occurred subsequent and also during the preparation of our final EIR, which increased the mitigation requirements beyond those that were specifically identified in the city's final environmental impact report.

In spite of any differences, a key point that I'd like to stress is that the requirements of the wildlife agencies will prevail, as the city

ensures that all necessary permits and agreements have been obtained before we issue any permits. We're confident that we're on the same page with the wildlife agencies and the CEC staff.

Finally, I'd like to conclude that the city is supportive of the use of Bernardo Mountain as a mitigation area. It's a highly visible piece with a long history of contentious land use submittals, that include land use, biology and traffic that would be addressed by the inclusion as a mitigation area.

The city also would have no concerns about the supplemental mitigation occurring in another jurisdiction. So we do find that the conditions proposed by CEC are functionally equivalent.

HEARING OFFICER GEFTER: Thank you. Do you have any questions for the witness?

MR. KRAMER: No, none.

MR. BRIGGS: None from the intervenor.

HEARING OFFICER GEFTER: All right. Thank you very much for being here.

MR. MILLER: Thank you. We do have another representative to deal with the remaining traffic issue that you wanted to address.

HEARING OFFICER GEFTER: We're going to first of all find out if the staff has any testimony on land use?

MR. KRAMER: Just Exhibit 50, which we would submit on declaration.

HEARING OFFICER GEFTER: And hearing no objection, Exhibit 50 on land use topic is received into the record. So land use is closed. We had one issue remaining in traffic and transportation with respect to mitigating construction-related impacts on the roads near the site.

And I understand that the applicant has been working with the city to give us some additional language for conditions on that topic.

MR. MILLER: Thank you. Let me, if I could, invite Mr. Pat Thomas to come to the witness table.

HEARING OFFICER GEFTER: Is Mr. Thomas going to be testifying? Should we swear the witness in?

MR. MILLER: Yes, he should be sworn.

Whereupon,

PATRICK THOMAS

was called as a witness herein, and after first

having been duly sworn, was examined and testified as follows:

MR. MILLER: I'm wondering. I guess a preface to this would be that we didn't have a discussion about this issue at our first hearing. And during a recess we did develop a modification of two conditions that were in the FSA, and actually were in addendum one to the FSA.

And those conditions became known as Exhibit 51A, which includes some additional language that was intended to address construction impacts of the power plant at two intersections. And that was at Vineyard and Sitracado, and Country Club and Sitracado.

It was our position, as applicant, that with those changes we believe that significant impacts of traffic from construction are mitigated. I'd leave it to staff to address that, I believe they have the same opinion.

And so it was to provide further assurance to the community that we contacted the city and provided a copy of those proposed changes to those two conditions to further determine that they believe the impacts were satisfactorily mitigated.

So, that's the purpose of Mr. Thomas' testimony. If I could ask Mr. Thomas first to identify himself for the record, and his position in the city.

MR. THOMAS: Yes, my name is Patrick Thomas. I'm Director of Public Works for the city of Escondido.

MR. MILLER: And in that position you have responsibility for traffic planning and management within the city?

MR. THOMAS: Yes, that's correct.

MR. MILLER: Could you then just comment on the proposed condition, and whether you believe that that does satisfactorily mitigate construction traffic impacts. And you might, also, if I could add, just briefly describe the much larger traffic study that was conducted as part of the ERTC EIR process?

MR. THOMAS: Yes. As part of the environmental review for the ERTC and power plant project, a traffic study was prepared and all of the impacts of the traffic to the project were identified to all of the street segments and intersections in the general vicinity of the project.

And one of the conditions for the approval of the project from the city was that the applicant both construct certain improvements to streets and intersections in the vicinity of the project, as well as pay a fair share of the cost of future improvements to other intersections and street segments in the vicinity of the project.

So those were conditions that were applied by the city to the approval of the ERTC project.

Specifically to the issue of the construction-related traffic at the intersection of Sitracado/Vineyard, and Sitracado/Country Club, the modifications for the conditions that were presented are acceptable to the city.

The city did have a conditional approval in its requirements that a traffic control plan be prepared to address the construction-related impacts and the conditions that were added, to further clarify what those construction-related improvements would need to be to handle the construction traffic from the project.

So we do agree with that. Regarding the intersection of Sitracado and Country Club, one of the added requirements was to include in the plan

how the construction-related traffic would be addressed. That would be a part of what would be submitted to the city for approval.

And also that intersection is planned to be signalized in the not-too-distant future as part of a larger city capital improvement project.

HEARING OFFICER GEFTER: And that was a question that I had at the last hearing, as to the timeline for the installation of that traffic signal. Could you be more specific as to when that will be installed?

MR. THOMAS: Well, we're still in the planning stages for that project. We're doing the engineering design for the project now. We anticipate that that would be constructed sometime within the next two to three year timeframe. We don't have all of the funding identified at this point, but we're in the process of putting that plan together.

But our plan is definitely that that project would be constructed, including that traffic signal, within the next two to three years and prior to any occupancy in the business park.

HEARING OFFICER GEFTER: Okay. I understood from testimony last time that in fact

the developer of the ERTC project would be funding that signal. Is that accurate?

MR. THOMAS: Well, actually they're paying for their fair share of the impact at that intersection. And their funding was identified to be used for a project. Actually it's the widening of the Nordall Bridge, which is over Highway 78 in that general vicinity. And the city is actually providing the funding for the intersection there at Country Club.

HEARING OFFICER GEFTER: Well, pending the installation of the signal, there's apparently, according to staff's testimony, that intersection currently operates in LOSF. And so any additional impacts would be significant. So during construction of the Palomar project, what sort of mitigation measures would the city be looking for?

MR. THOMAS: Yes, that's a good question. One of the conditions will be that the -- the LOSF condition is present during the peak hours, so one of the conditions will be that any truck traffic into the site would be done in off-peak hours. So that's what we would anticipate would address that.

MR. MILLER: Thank you. We have nothing further then on that issue.

HEARING OFFICER GEFTER: I was just going to ask staff or the intervenor if they had any questions of the witness?

MR. KRAMER: No questions.

MR. BRIGGS: No questions.

HEARING OFFICER GEFTER: Okay, fine. Go ahead.

MR. MILLER: I was just jumping the gun, and moving that the record be closed on traffic.

HEARING OFFICER GEFTER: Given that there are no further questions on the topic and that the city is satisfied with Exhibit 51A, I believe, was the Exhibit number for the modifications to the language of the traffic conditions, we will close the record on traffic and transportation at this point.

And I think that closes the record on all of our topics except for air. We still have some pending matters on air quality.

MR. KRAMER: I think we might be able to close that out right now. We talked to the applicant and as to the -- first of all the condition modification to expressly include the

requirement of drift eliminators -- we suggested a sentence be added to AQSC9.

And our intention is that staff will put this into a third addendum, to be filed later this week. But let me just read this for the record so everybody understands what we're doing. The sentence to add to AQSC9 would read, "the cooling tower shall be equipped with drift eliminators with an efficiency of 0.005 percent."

HEARING OFFICER GEFTER: That was the request, to have a condition that included that language. Why would AQ9 be the appropriate condition to add it to?

MR. KRAMER: It's already talking about the drift, I believe.

HEARING OFFICER GEFTER: Oh, I'm sorry, I'm looking at the wrong -- yeah, that's fine.

MR. KRAMER: As to the issue of balancing the books, with regard to AQSC5, which has the table of ERC's. There were two ways to do it. One would be to add in that other credit that the applicant is basically using as a backup.

They would prefer just to lower their limits on emissions, in other words what we call their cap, because they're only going to have to

use a small portion of that condition.

So, in order to do that, we simply need to amend a couple of conditions. And AQSC5, the second to the last ERC that's listed in the table, it says "no ERC number diesel engine replacement." We would change the value of that from 26.8 to 26.0 tons per year.

And then, in AQ17, which sets the NOX emission cap for the year, we would change the 105 tons to 104.3 tons. We would make that same change in AQ49, and also in AQ49 we would change the number 126.0 tons to 125.2 tons.

Basically, that just takes off the .8 from that one credit, because based on what we know now we know it's going to be at least 26 and it might be 26.1, somewhere in there. And then we calculate backwards from that to set the cap.

So staff is comfortable with that, and again we propose to just produce an addendum later this week to just reprint the conditions as we want them to read for the sake of everyone's review.

HEARING OFFICER GEFTER: Again, from my perspective, I don't have the expertise to tell you whether that makes sense or not. However, I

would like a signoff from the air district on those proposed changes. Is that possible before staff files your addendum with those proposed changes? I'd like to have indication from the air district that that's acceptable to them as well.

MR. KRAMER: Okay. It might delay our release a little bit, but I don't see any problem in getting that. Does the applicant?

MR. MILLER: I don't think so. I would just point out that the staff already did provide a certification letter even with this .76 issue. And so we believe actually that the existing record will support their concurrence.

We would be willing to contact them to make sure there's no issue with this. This would just reduce the allowable gap they impose. I'm sure they would have no concern with that.

HEARING OFFICER GEFTER: I'm sure that would be the case, but it would be best to run it by them to make sure that they think it's feasible. And the other thing, I understand from these proposals that you would not include the 15 tons per year for NOX from the --

MR. KRAMER: Correct, it's now irrelevant.

HEARING OFFICER GEFTER: And so Exhibit 34 is irrelevant to our proceeding, or that still exists for the air district to use as a backup?

MR. MILLER: Yes, as an insurance factor, yes.

HEARING OFFICER GEFTER: Okay. When staff files the addendum with these proposed changes to the conditions, would you also explain the role of Exhibit 34 and why that is in the record? Why the air district would still be able to use that as a backup, so that it's all clear when we issue the PMPD we have a clear record on this topic.

MR. MILLER: That's fine, thank you.

HEARING OFFICER GEFTER: Yes, okay. Thank you very much. At this point, again, air still remains open until I receive an addendum which indicates the changes to the conditions as proposed this afternoon. And other than that, everything is closed. Do you have a question?

MR. GEESMAN: Hearing Officer Gefter, at the risk of really antagonizing you, I want to briefly reopen the water resources portion of the record to ask Mr. Powers a question.

HEARING OFFICER GEFTER: We can do that,

it's our record.

MR. GEESMAN: I understand that. And it's my committee.

HEARING OFFICER GEFTER: And it's your committee.

MR. GEESMAN: Reading the morning newspaper I was reminded of the ongoing difficulty that the state of California, southern California in particular, is having with the federal government over the reduced take from the Colorado River.

And I am quite sensitive to the challenges of living at the end of the pipe here in San Diego. The ongoing difficulties in meeting the communities water supply requirements, historic tensions between the county of San Diego and other representatives to the board of the metropolitan water district of southern California.

Looking over your testimony in Exhibit number 108 I note that you cite, with some approval, the CEC's staff recommendation on the El Segundo project near the Los Angeles airport of using reclaimed water for a once through cooling system that would consume about three hundred

million gallons a day. Here, you're critical of a proposal to use 3.6 million gallons a day.

In El Segundo you described the staff proposal as "a truly creative and excellent use of reclaimed water." Yet, by my arithmetic, 300 million gallons a day would support about 83 Palomar energy projects. The Commission needs to take statewide considerations into account, and certainly San Diego's water situation is a part of an integrated whole, not only in the state but particularly within southern California.

Why is 3.6 million gallons a day of reclaimed water here bad, but 300 million gallons a day of reclaimed water in Los Angeles truly creative and excellent?

MR. POWERS: It's a very fair question. The system that they're using for cooling in El Segundo is once through cooling, as you identified, but the reason it is unique and creative is because the 300 million gallons a day will come from Hyperion -- the wastewater water treatment plant, the reclaimed water plant -- go to the plant, run through the cooling system, pick up 20 degrees Fahrenheit or so, and then go right back to the reclaimed water plant. Not a gallon

is dumped in the ocean at that point.

And so all of that 300 million gallons of reclaimed water is still available for uses for water. I think they're producing far more reclaimed water than they're using now, but the reason it is innovative is that all of that water remains available for water uses.

You're getting a second use out of it by running it over to Hyperion a mile away, and then back to the reclaimed water project. So it is consistent with advocating dry cooling at this site, because Hyperion is not using -- I'm sure a few gallons leak out -- but it's essentially not losing any of that reclaimed water.

MR. GEESMAN: Ms. Gefter, it's your hearing again.

HEARING OFFICER GEFTER: All right. Our topics are closed, and the next step of the process are the briefs by the parties. And what we're looking for, in terms of briefs, particularly on the water supply issue, is discussion of the legal standards that we need to look at.

We found that we had our experts disagreeing on the numbers on a lot of the minute

details, and while the experts can disagree and they can all be correct, what we really need to look at is what legal standards we should be applying in making our determination as to whether or not the cooling option chosen by the applicant is appropriate, whether there are significant unmitigable impacts as a result of the applicant's choice of the wet cooling process.

And that's what I would hope to see in the briefs. Also, when you file your briefs I would appreciate references to the Exhibit numbers and the page numbers that you're relying on, and the briefs will be due ten days after the transcript is available.

We've asked for an expedited transcript, but that doesn't mean we'll have it tomorrow. It could be another week before it's available. Once it's available it will be posted on the commission's website. We'll also e-mail it to all the parties.

The next step after we've received the briefs. The parties have the option of filing reply briefs. I'd really prefer that we not do that, although if you feel you must you're welcome to. Because you end up repeating a lot of the

same issues that you may have already addressed in the initial briefs, and it may not be very helpful to the committee in any event.

So, we're certainly not encouraging reply briefs. You're welcome to do that if you feel that you must.

MR. BRIGGS: Ms. Gefter, could I just clarify on that. It's not our purpose to be repetitious, but would a reply brief be appropriate if there is some dispute over the legal standard and we're having an argue about the interpretation of the legal standard, as opposed to the transcript and what the evidence indicates.

I'm trying to get a sense of when you think a reply brief would be appropriate, if ever, because I don't want to waste anybody's time.

HEARING OFFICER GEFTER: I really can't give you an answer on that, because I think everyone will submit what they believe is the appropriate legal standard and we will look at that and make our determinations.

Yes, Mr. Kramer?

MR. KRAMER: Just a question on the timing, though. The current hearing order doesn't mention reply briefs at all. Certainly my goal

when I write one is not to be repetitive, but I fully anticipate that I may want to point out to somebody that something's wrong, so should we set a cutoff date for those?

HEARING OFFICER GEFTER: Yes, and again that will be ten days after receipt of the opening brief. So the opening brief is due ten days after the transcript is received. And in fact, when I e-mail the transcript to the parties, in that e-mail we'll set a date so that everyone is on that same page.

And then, ten days after the opening briefs are received, you have the option of filing a reply brief if you must.

MR. MILLER: Could I, just to save a few days, and we are sort of looking ahead to the PMPD and of course looking back a long way for the project, I think we proposed turnaround and reply dates of seven days, which I think should be adequate if we follow your prescription that they be sparingly used on just a few issues. So I would propose seven days after opening brief rather than ten days. We want to --

MR. KRAMER: I have a lot of internal masters that have to read my stuff, and they get

really difficult if they --

HEARING OFFICER GEFTER: I don't think three days difference is going to make a difference in terms of the PMPD release date. After the briefs are filed the committee will be in the process of reviewing the evidence, and we cannot give you a date for release of the PMPD, but it will be sometime in June. So we're looking for June, and I can't give you a date.

MR. MILLER: A couple of other things. First, in prior experience there have been times when -- excuse me, it's been another intervenor not mr. Powers -- but I would just like to raise the concern that there not be any new information added to the briefs.

In one proceeding we got 100 new pages of new Exhibits attached to the briefs and cited as footnotes. So I just wanted to call that to your attention and get your concurrence that that's not appropriate.

HEARING OFFICER GEFTER: I think all the counsel today understand that.

MR. MILLER: I think they all are well aware of that, but I just got burned once, so --. The other thing is did you want to just have a

wholesale moving of all of my Exhibits by number into the record, just for safety's sake, or --

HEARING OFFICER GEFTER: Yes, we'll do that. If there is nothing else pending, anybody else had any questions, motions, issues?

MR. BRIGGS: No.

HEARING OFFICER GEFTER: Okay. We'll do our final housekeeping at this point. If we have any more public comment. Ms. Mendonca, if you're aware of any member of the public that wants to address us?

MS. MENDONCA: No.

HEARING OFFICER GEFTER: All right. So we will do the final wrapup of accepting all the Exhibits at this time, and in particular the Exhibits that were offered in portions throughout the hearing, you may now ask that the entire document be admitted to make sure that we have everything on the record. And you don't have to go through and name each one, except for Exhibit 1, but then you could go forward.

MR. MILLER: I'll start and you can steer me if I get offbase. I would move that all of Exhibit 1, and all of the data response Exhibits, which are 2A, B, C, D, E, F, G, and 3A,

B, 4A, B, be moved into the record. I guess I should also say 5A, B, C.

And then I guess I would just go ahead and say that I would move Exhibits 6 through 40 into the record as well. Which have all been produced, I believe, by particular witnesses, with the exception of 23.

MR. KRAMER: I think, technically, 23 --

HEARING OFFICER GEFTER: Right. With the exception of 23. That's fine, all of those documents have already been received into the record. And now we confirm that they are received into the record. And staff?

MR. KRAMER: Exhibits 50 through 57, including 51A.

HEARING OFFICER GEFTER: Yes, okay. And those documents have been received, and we've now confirmed that they are now received into the record.

MR. KRAMER: And Mr. Eller reminds me we should probably give the addendum that's coming a number.

HEARING OFFICER GEFTER: Right. We'll identify that. The record still remains open on those limited issues related to air quality. And

that addendum would be identified as Exhibit 58. And when you submit it you will send copies to the parties and to the proof. And it could be e-mailed to those of us with e-mail addresses, and that will become part of the record at that time.

MR. KRAMER: Okay. We'll try to attach any letters in the district as an attachment to that.

MR. MILLER: Okay. And with regard to that issue that goes to that one issue that the air record remains open, once you see that will you then be issuing an identification that the record has been closed at that point, if you're satisfied?

HEARING OFFICER GEFTER: I don't know that I have to send out a formal identification. We won't accept any more information on air after that, so it will be closed when the PMPD comes out in any event. So, I don't need to formally close it. Don't worry, I'm not going to accept any more evidence on air.

MR. MILLER: We want to be done, that's all.

HEARING OFFICER GEFTER: I can tell you that on e-mail. I'm not going to send out a

formal identification.

MR. MILLER: We appreciate that.

HEARING OFFICER GEFTER: All right. And intervenor?

MR. BRIGGS: Ms. Gefter, I cannot seem to find my list, but I believe we went through this last night. So can we just agree that the exercise we did last night covers it for today?

HEARING OFFICER GEFTER: That's fine. All the Exhibits that were identified and admitted from the intervenor remain admitted into the record, and those that were removed are removed, and it's in the record.

All right. Anything else from anybody before we close?

MR. GEESMAN: I'd like to thank the applicant and the staff and the intervenor for the high professional standard with which you participated in this proceeding.

I think it's been very helpful to us, and now the job will be ours to come up with a PMPD.

MR. MILLER: Thank you.

MR. BRIGGS: Thank you.

HEARING OFFICER GEFTER: Thank you. The

hearing is adjourned.

(Whereupon, at 12:43 p.m. the hearing was adjourned.)

CERTIFICATE OF REPORTER

I, JAMES RAMOS, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Hearing; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said hearing, nor in any way interested in outcome of said hearing.

IN WITNESS WHEREOF, I have hereunto set my hand this 7th day of May, 2003.